International Technical and Vocational Education and Training (TVET) Transfer Project - Theoretical-practical experiences of workplace training with the workforce in the Egyptian construction industry

Stefan Wolf[1]

Abstract   The Water-Energy-Building - Training and Transfer (WEB-TT) project was funded since the beginning of 2011 for a three-year period. The main goal was to develop appropriate training modules for the Egyptian construction industries. The project WEB-TT focused on the improvement of the highest level of construction workers not on qualification of engineers. For the different ends of this improvement, adapted training measures need to be formulated. Their formulation in turn requires an exact knowledge of the present demand for training measures by the management of the company and the environment in which the measurements will be embedded. The concepts of training transferred from Germany to Egypt would adapted to the different context of the Egyptian side. Therefore, and because of the specific circumstances of the project starting at similar times with the Egyptian revolution in the Arabian spring specific theoretical approaches of understand the policy transfer process in TVET. The theoretical concepts are explained and reflected on the experiences of the practical transfer project. The results of the successful transfer project WEB-TT were illustrated and with the conclusion further research needs to better understanding of the process of policy transfer in TVET were outlined.

1 Introduction

The here presented article focuses on a policy transfer project in TVET between Germany and Egypt in the field of building and construction between 2011 and 2014. It will show the utilisation of a basic theoretical understanding of the intertwining between culture and the TVET systems of a given society to shape properly

1 Priv. Doz. Dr. phil. Stefan Wolf

TU Berlin, Institut für Erziehungswissenschaft, FG Schul- und Berufspädagogik

e-mail: s.wolf@tu-berlin.de

the policy transfer in TVET between two countries. To some extent the Research & Development (R&D) - project WEB-TT is to understand as a proving in the field of the concept of work culture to refine the stages of policy borrowing in education of Phillips and Ochs. Besides, the concept of work culture was similar used as a heuristic toolkit to better understand to what and to how the Egyptian TVET system operates related to the situation of the construction industry specifically our Egyptian partner company Orascom Construction Industries (OCI). The three year cooperating project in TVET WEB-TT between Egyptian and German partners give the experiential background of the article. The R&D project was able to develop successful results of in-company training activities to improve the quality of site workers in Egyptian private construction companies. We were obliged to work in an open design approach due to the troubles and constraints of the Arabian spring and the Egyptian revolution with the overthrow of the Mubarak military government at the beginning of our cooperation project in 2011. A factor of success was the suitable use of theoretical approaches to shape the process and to gain light on the very different regulations and structure of TVET in Egypt as a reference to our transfer activities from Germany. First the article will show the used theoretical concept with hints to our experiences in the project WEB-TT. After this theoretical focus we change the description to the practical experiences of the WEB-TT project and the results we could deliver after the three year period. The conclusion finalised the article with a short prospect to further research need referring to our experiences in policy transfer to Egypt.

2 Theoretical Fundaments and Resuming Theoretical Approach Extended

The below more detailed described project WEB-TT and its success founded on a theoretical approach called work culture to clarify the societal environment of the TVET system in Egypt. But in general the main theoretical assumption was a widespread understanding that the workforce qualification regulations exists in close interrelations with the societal environments of a given society. This societal environment of qualification is understandable with an approach that culture is as an expression of dynamic results of actor´s activities in contested social fields (Wolf 2010c). In contrast to common culturalist reductions, this approach understands culture as a dynamic social process, a process in which social actors in a highly competitive social arena of negotiation compete in order to secure a position in society. To guarantee a capacity of social governance, social actors are required to interpret and process external influences, both material and cultural, individual and collective. If necessary, external influences are newly formulated, provided that there is progress of social processes. Here, social actors create new systems of meaning, a new symbolic order or also an innovative individual style. A number of scholars have described this mechanism of re-formulating cultural meanings (Auslander

2008; Çaglar 1995; Hobsbawm & Ranger 2003). Based on this dynamic understanding of culture the scientific responsible persons of the WEB-TT project has used two more operative suitable assumptions of the interrelations of culture and TVET specifically in the policy transfer process.

First, on a higher level towards society the work culture approach (Wolf 2011) with its six dimensions to attend to policy transfer activities in TVET (Barabasch & Wolf 2011; Wolf 2010c). Additional to shape the appropriate training activities we need on the mid-level an approach called cultural factors of influence on vocational training with its four categories of bundle of factors (Wolf 2010a, 2010b). Here is not the place to detail the two approaches but the article will focus on the work culture and its placement in a general theoretical understanding of policy transfer processes (more detailed information about the results of work culture analysis in Egypt see Wolf 2013a, 2014).

2.1 The Stages of Policy Borrowing in Education

To understand the complex activities of policy transfer in education David Phillips and Kimberly Ochs offer a clear concept to analyse the processing of transfer educational policies from on country to another. They start their concept with the question of what can be transferred under what condition. The process of transferring policies starts regularly with the cross-national attraction. Starting point in a given society is very often an inner-state impulse to change things in the educational system as a precondition of the transfer process e.g. the large debates after the first PISA study results in Germany and the released changes (Ertl 2006). But only some impulses can be successful start a borrowing process of educational policies. The impulses must address aspects

> of educational policies and practices that can be borrowed and which we here define as illustrating the range of 'externalising potential' in the target country. (Phillips & Ochs 2003, p. 453)

The attraction of external elements in the policy transfer depends on six foci of educational policy development and is related to them (Ochs & Phillips 2002, pp. 329 f.).
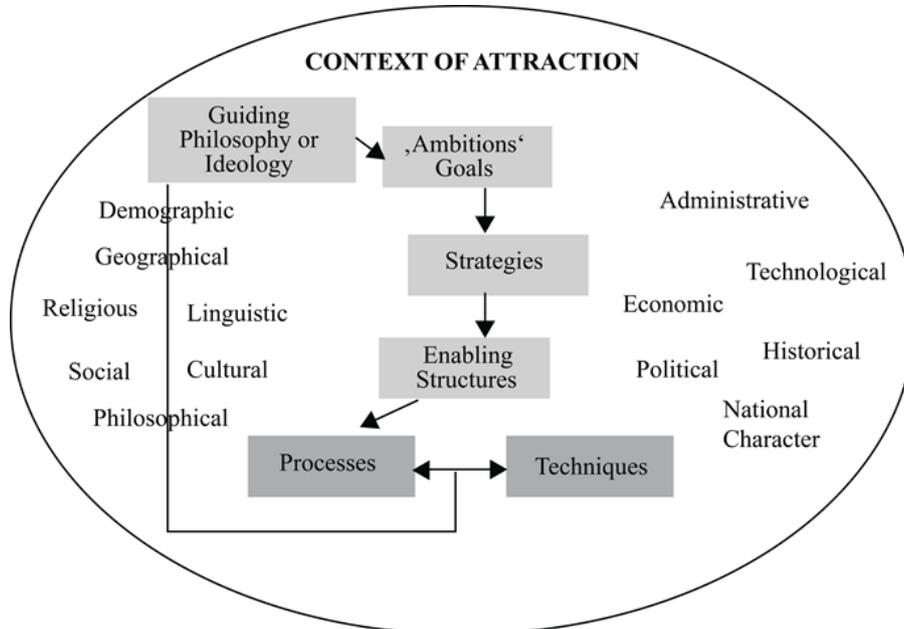
Fig.1 Elements of externalizing potentials and the context of cross-national attraction (source: Philipps & Ochs 2003, p. 454)

Any successful transfer activities have to refer to these six foci resp. the borrowed elements will be to some extent part of the foci of educational policy development. However, taking into account need the embeddedness of policies transfer. The process and the shaping of the transfer cannot developed independently or without reference to the contextual factors show in figure 1. With the concept of work culture pointed out briefly above we can precise the more general named context in the approach of Philips and Ochs for TVET transfer activities. But before a deeper explanation is given the concept of stages of policy borrowing in education first will follow.

In their analytic approach, Phillips and Ochs continue with the How of the process. In this second step, the decision stage many measures is focused with which government or other agencies attempts to start the policy transfer. Base of these activities are the outcomes of the previous step of cross-national attraction. The four illustrative descriptors (theoretical, phoney, realistic, quick fix) of the How of the decision doing are derived from an analysis of the activity of political actors. The case of the R&D project WEB-TT shows however that integrating other social actors or stakeholder in the process of policy transfer in education e.g. the management staff, the engineers as a representative of the academic workforce in the private company and the foremen as workers' representatives is needed. This will lead us to different activities and will give us more descriptors that are illustrative in the decision-making step. The third step of the policy transfer process means the stage

of implementation. Depending from a large number of contextual factors the possibilities of adaptation of the foreign elements to the borrower system and the role and the attitude of significant actors in the process will lead to support or to resistance of the implementation activities to some extent. If resistance is articulated, the implementation will stop and the borrowing become to an end. Very often, the resistance is not transparent. It face blockage to subvert the process with inaction, delaying tactics or non-decision. The last step of the process, the stage of internalisation resp. indigenisation, bring the transferred policy to become part of the indigenous education system. To deeper understand and to analyse this stage Phillips and Ochs differentiate it in four steps, impact on existing system, the absorption of external features, the synthesis and the evaluation at the end of the process, so it will – depending on the results of the evaluation – restart the whole process (Phillips & Ochs 2003).
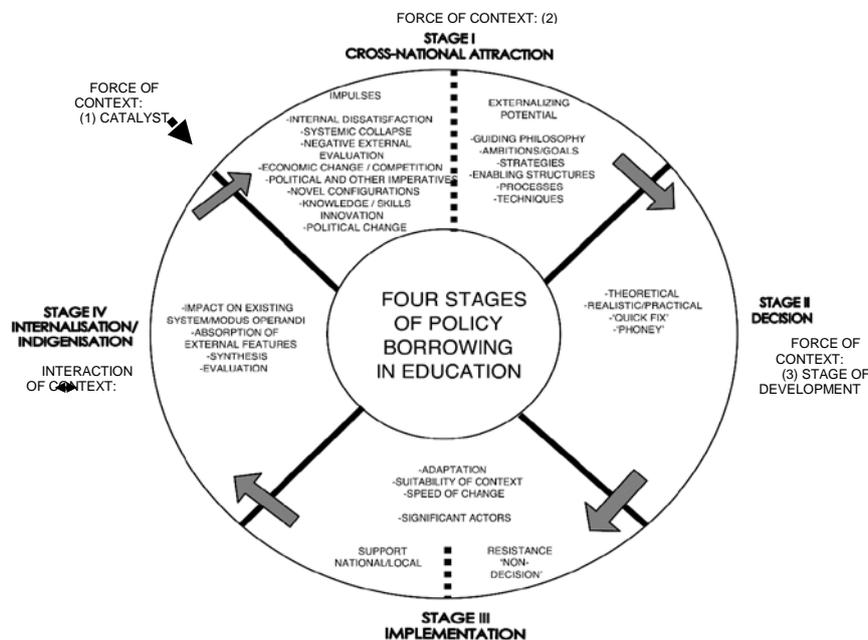
Fig 2 Stages of policy transfer in Education and contextual factors in process (source: Phillips & Ochs 2003, p. 459)

As already becomes clear, the process of policy transfer is very complex and not easy to decipher by using the here just refereed tool of Phillips and Ochs. In addition, the exploration of policy transfers has to consider and also to examine the aforementioned wide varieties of political and social context factors of both lender and the borrower society. The existing publications of the transfer of policies in education and in TVET in selected countries shows that the systematic comparison

has to take into account a high complexity (see add. e.g. Dolowitz & Marsh 1996, 2000; Rappleye 2006). The model of four stages to analyse the process of policy transfer in education will facilitate the research and give helpful advice for practical issues in TVET transfer processes (Phillips & Ochs 2004; Phillips & Schweisfurth 2006). They give an orientation building categories of Why (reasons), What for (impacts), How (structure of the process). This orientation gives a first step to understand policy transfer in TVET. A successful shape of a policy transfer in TVET to some extent need deeper understanding, particularly to the context in which the "TVET things" are embedded. The actors involved in the process e.g. a transfer process shaping consultative scientist need to know the interests of both sides, as well as cultural practices and motives for adopting the policies (Tanaka 2005). A successful policy transfer will happen if both sides (lender and borrower) equally have consented in the transfer (disclosure of knowledge - recording and processing of knowledge) and agreed to it.

The respect to the context is the core issue. Phillis and Ochs differs the context in five driving factors that influence at different level the stages of policy borrowing (see figure 2). (1) The forces of context that catalyst the process of borrowing by starting the search for foreign examples of better education driven by cross-national attraction. The sputnik shock in the late 1950th is one of the related example for such catalyst contextual force (Phillips & Ochs 2003, p. 457 f). (2) The forces of context that affect the motives for attraction e.g. the decision of implementing features of colonial schooling to serve the colonial interests in the early 20 century (Adick 1993; Eckert 2005; Johnson 2006). (3) The decision stage could also be affected by contextual forces e.g. the timing of re-elections in a country. The accidental resigning of a key player of the borrowing process as it happened during the R&D project WEB-TT is also a corresponding illustration of the forces of context. One other example from the experiences of WEB-TT shows it deeper. The decision to continue to work under a complete open concept after the failure of the starting project concept due to the Egyptian revolution from the spring 2011 and to develop frankly a new and unknown training concepts to fit the different needs of societal environment in Egypt and the need of the company was strongly influenced by context forces. The training centre of German crafts - part of the WEB-TT consortium - could see that their daily work of inter-company training activities will fit to some extent to the unknown environment. In the German legal regulation of in-company training of the Dual apprenticeship system we could find some similarities to skills based training in Egypt and also to the existing Egyptian Vocational Qualification frames (Wolf 2012a). (4) Also in the stage of implementation the contextual interaction and affection of forces of context we have to consider in both countries and to reflect it clearly. In the here referred WEB-TT project we were obliged to consider the different context in Germany and in Egypt towards a concept of structural modularising of technical training. In Egypt it will fit excellent to the common understanding if we decide to shape our training activities into small pieces of modularised training and to deliver certificates for the training activities to the participants, but from a German perspective, the delivering of certificates of modularised

small scale training activities is a very contested field and restricted under a perspective of German legal regulation under the responsibility of the concerned body as nominated in the Vocational Training Act ("Berufsbildungsgesetz" BBiG) and Crafts Code ("Handwerksordnung" HwO). (5) In the last stage of the cycle of process of policy borrowing in education too, we have address the issues of affecting from interaction of context. To clarify the idea what could be meant e.g. after our practical experiences in Egypt today we stated that the internalisation of our training concept we have developed together with the Egyptian partner OCI was successful done by the Egyptian side but not in our understanding of proper internalisation. We understand that we will internalise a close concept of training, certification and quality assurance with clear regulations to be able to deliver the Training-made-in-Germany quality. The Egyptians use their new experiences and capacities with trained staff - the internal called master-trainers with German certificates of the pilot courses delivered by WEB-TT - to produce their own results by continue train in-company-trainers by the master trainers and deliver specific in-company certificates of OCI to the newly in-company-trainers. But no additional monetary investment to improve the quality of the workforce was done during the process of internalisation. These issues of context we have to compare in both countries. This will engender some difficulties because the foreign background of TVET is not simple to understand and to grasp. The like of the home system is often much easier to perform. But what we also need more cross-discipline approaches to understand better the inner-dynamics of the different stages. So we need to enlighten the role of different actors and their interests in the decision making stage, by any means the main subject of political economy (Busemeyer & Trampusch 2011; Thelen 2004).

Reflecting this above described concept to analyse policy transfer processes in education on the background of our experiences in Egypt we confirm the state of importance of the contextual factors. However, the more general assumption in the approach of Phillips and Ochs that context matters need to refine and to precise for analyses in TVET transfers. We have done it and developed the concept of work culture as a clarification of the context of a specific TVET system in a country. It based on a long-standing discourse in the German academic TVET pedagogics (e.g. Deissinger 2008; Georg 1997b; Greinert 1999, 2004b; Wolf 2009). It will give us an approach to compare and understand the foreign TVET regulation and more clearly delimit the cultural context factors. In the R&D project WEB-TT in Egypt we have use it as an analytic toolkit with a strong heuristic function to become to a better understanding of the foreign context of our policy transfer activities.

2.2 The Concept of Work Culture as a Background of TVET

The concept brings light in the symbolic structures of order and the system of cultural meaning of a society at the interchange with vocational education and training. Starting from a cursory remark from Greinert on important features of work culture

of German vocational education, the next section will break down and complement the essential interrelations between economic activities and vocational education (Greinert 2007, pp. 161 ff.). As at other places already mentioned (Barabasch & Wolf 2011; Wolf 2009, 2010a), vocational education or training interrelates with other social areas of society. It is important in terms of social education and in the production of goods and services. For the purpose of this paper, we will focus here on the latter and the economy's impact on cultural mechanisms and the interrelationship with vocational education (Georg 1997a; Greinert 2004a). The impact of a system of cultural meaning on a business or company and its related regulatory patters are closely linked to the vocational education system. The recruiting of the work force is also affected and at the same time, the differences of the TVET system cause/require other regulatory patters and forms of organisation in company action (Maurice et al. 1980; Regini 1997; Sorge 1995). This brings about changed forms of how work is organised that, in Germany, is characterised as dull and task-oriented and in France a strict hierarchy informs forms of organisation with extremely detailed task descriptions (Wolf 2009, pp. 97 ff.).
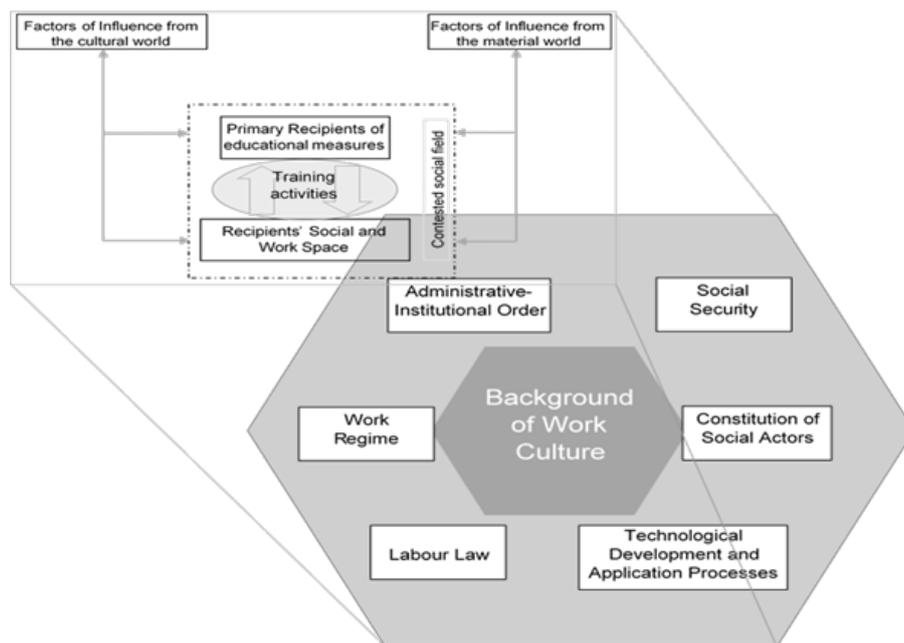
Fig. 3 Work culture as a background of TVET, authors own compilation

A similar interdependency/interrelation between cultural meanings and rules of the working world also apply to the labour law (Mückenberger 1998; Supiot & Mückenberger 2000). Law studies show that effective cultural systems of meaning, created by social actors, are the result of historical and social experience. According

to Mückenberger, they accumulate in societal visions of guaranteed social security and freedom. While in England these rules are mediated by market relations, that is, freedom and social security are understood as unencumbered by the state, in France the state is the decisive authority. The state here guarantees the freedom of political articulation. In Germany, social security is a result of societal arrangements, whether it by in the sphere of free collective bargaining or in collective labour law. However, the emphasis on seeking agreements in the German labour market has also led to a loss of freedom since it is not achieved in discussions free of forms of state domination. Rather, these conversations occur under the authority of powerful state actors and lobbyists (Wolf 2009, p. 96 f).

A further area that has relevance for vocational education is the production of development and application processes of new techniques and procedures. Workers at the shop-floor level of the production regime are directly involved in these processes and need consequently a training to some extent to operate properly. Several scientific studies have revealed that the decision-making processes and the operational implementation are dependent on cultural meaning. This dependency is not rational. It is not objective but rather this is about a social interaction whose rules determine the behaviour of those participating (e.g. Hofstede 1980; Selznick 1949; Stinchcombe 1965). We can assume then that cultural patterns of interpretation take the lead in this process and prevail over rational expectations of an efficient process of organisation. Alongside this outcome of organisational sociology, the social science research on technology discovered that the development of new technical products are also subject to cultural rules. Here, it should not be assumed that the most favourable solution prevails, but rather the one that best complies with the social requirements of the field of negotiation for the technology developers (Dierkes & Knie 1989; Hard & Knie 2000; Lutz & Hirsch-Kreinsen 1987; Ruth 1995).

The question of central social actors who play a role in shaping relations of production needs to be clarified. It is important to distinguish between collective actors and individual social actors. From a German perspective, the powerful trade unions fall under the category of central collective actors and, historically, have played a primary role in shaping vocational education. These collective actors appear in a variety of shapes and forms, for example, in the state administration of the education ministry and programme models for vocational schooling or the traditional apprenticeship system in sub-Sahara Africa (Adam & Boehm 1994; Greinert 1999; Nübler et al. 2009). Identifying collective actors for a comparative analysis and clarifying their influence on shaping vocational education and training can provide inferences as to the outlook of vocational policy transfer. Alongside the collective actors, it is important to observe individual actors, their worlds, cultural systems of meaning, as well as their imaginations of a *"good life"* (Wolf 2009). Without going into detail, it is fair to say that, for a long time, the German dual apprenticeship model, with its gender-specific, male-dominated work biography, represented the norm (Baethge 2001; Hausen 1976). The individual subject is interrelated to vocational education by his/her socialisation, too (Lempert 2006). The training and succeeding professional activities have a powerful effect on the constitution of the self and

identity (Deetz 2000; Krappmann 1983; Körzel 1987; Leithäuser 1986; Schönberger & Springer 2003).

A further category worth mentioning is one of social security; that is, how a society approaches its aging, sick, or those socially disadvantaged. On many levels, this category is entangled with the system of vocational education. At the institutional-structural level, the German social security system relies on professional training with permanent and full-time employment that undergirds the overall employment system. Therefore, social security has been designed around a dual vocational system and individuals can access social protection and chances for a stable social and economic position (Reif 1982). In contexts without these features of the labour and training market, an elaborate system of vocational education and training has a significantly lower importance. Instead, people are trained on the job or attend school full-time. The question relevant for a comparative analysis is whether or not the elaborate form of vocational training is to an individual social actor's best advantage and whether or not imported aspects of vocational education and training would influence this category.

The last feature to mention is the administrative-institutional order taken up in the analysis of the context of such a transfer. The central issue here is who decides on the concrete arrangements of vocational education and which institutions are responsible. For example, in France, it is the National Ministry of Education; in Germany, the responsibility is scattered amongst federal and state-level bodies, including unions. In a large number of other countries, this stream of education is controlled by labour market mechanisms and vary in form from context to context. The three ideal types of administrative-institutional order can be found best described by Greinert 2000, to get a comparative overview to the different concepts to typologies the TVET systems in the world (Gonon 2013).

With the both noted theoretical concepts, the stages of policy borrowing in education and the additional refining of the context by the work culture approach we have suitable tools to shape policy transfer project in TVET but with all respect to high complex undertaking to bring features of TVET from one society to any other. The two concepts show us the way to understand the process of transfer, the stages, and a kind of understanding the insights of the process, the work culture, used as a heuristic toolkit. But we remain working to a great extent in a status of uncertainty because the reality of TVET transfer is too much complex that a theory can solve all problems and misunderstandings but with the presented theoretical approaches we have a lighthouse in the fog of reality. How they can be used in policy transfer activities in TVET specifically between developed countries and developing ones it will show now by the example of the already mentioned R&D-project WEB-TT.

3 The Policy Transfer Project Water-Energy-Building – Training and Transfer (WEB-TT)

Since 2008 the German federal government has implemented a new programme line for R&D projects in the TVET transfer activities of Germany (BMBF 2011). To improve the competiveness of SME's in the training sectors under an external trade perspective the government funds innovative projects to facilitate the export of German's Vocational training programmes abroad. In this line the WEB-TT project has been funded since the beginning of 2011 for a three year time frame. Within the consortium three departments of the TU Berlin work together with a chamber of craft, training centres of the German crafts in construction and some supporting organisation for technology and knowledge transfer processes. For more information see www.web-tt.org. The main goal is to develop appropriate training modules for the Egyptian construction industries. In the WEB-TT project, the client requesting curricula and training programmes is a large Egyptian private sector construction company.

This private demand for German TVET curricula indicates a significant change in the commonly existing approaches within international cooperation in vocational training for the German side of the supply chain. On the one hand, the development of curricula has to be completed quickly. This essentially means the German trainers have to arrive with ready-made curricula. Because of the cultural specificity of the German VET-system, it is simply not possible. On the other hand, the curricula and training measures have to be adapted according to the needs and conditions of the client, without taking too much time for preliminary and development studies. Therefore, the German providers need research-based assistance that helps to solve the theory-practice-problems. Adaptation to the needs and conditions of the clients or the partners of VET-cooperation is a complex undertaking, which cannot be solved sufficiently by executing a standard business-like 'requirements catalogue of supply and demand' transaction. In the case of the WEB-TT project, the managers and engineers in charge from the Egyptian side want their construction sites to be more efficient. The quality of construction should rise, the building processes should be optimised, and the teaching period for untrained construction workers should be reduced by 20 percent. To that end, specific training measures need to be formulated. Their formulation in turn requires an exact knowledge of the detailed demands for training measures by the management of the company. Because we've learned during our cooperation with the engineers and managers of the Egyptian company that a clear answer from their side of what kind of training they need will not be possible. The academic trained staff of any company in developing countries has usually no idea of intentional training activities for their workforce, skilled and semiskilled workers, and they have no tradition of doing such structured training. Under the perspective of our above noted theoretical concept we can now say that the existence of any customs and rules of doing any kind of training of under-academic staff will be a strong force of context to affect the implementation of training

activities from abroad. In Egypt the in-company training activities follows usually the rules and regulations of informal training of the large traditional (informal) sector, specifically in the construction field with its strong informal organisational structure of the workers (Assaad 1993).

The project team develops a new concept to cope with the complex circumstances, and to create proper training measurements. The word demand does not solely mean the requirements of the company; it aligns itself also in two other directions. It means to take into account firstly the embedding of the training measures into the given local contexts, and secondly adaptation to the requirements of the participants in the qualifications programmes. We call this "three-partied demand orientation". On a higher theoretical level we call our concept "need approach" in which the use of different theoretical based assumptions and an entangled methodological procedure is integrated (Wolf 2012a; Wolf 2013b).

3.1. Goals and Approaches of training activities of the WEB-TT Project

Under the aegis of a project-team consisting of staff members of three institutes of the TU Berlin, and with a consortium of five other partners in collaboration with the Egyptian construction industry, technology-specific vocational training courses in package solutions should be developed, tested and marketed. In cooperation with internationally active, private Egyptian construction companies, concepts for qualifications at the executive level on the construction sites were being developed.

At the beginning of the project, the planed concept in the proposal and the first activities should develop a large training facilities near Cairo with a clear structure of transfer of German concepts of Vocational College with clear linkages to Egyptian companies, a well experienced concept of German public TVET cooperation over the last decades. But we start the project at similar times as the Arabian Spring with its deep political changes in Egypt. Therefore we were two times obliged to change the Egyptian partners until we could start our cooperation with OCI. The whole planning move towards an open concept and the project team of the German consortium have had to decide how and what to transfer to fit the interests of the private company. In this open situation the use of the above mentioned theoretical concept gave us the possibilities to shape successfully the project. One example will clarify the way. Following the concept of work culture we have had an understanding that for any extent a suitable transfer of German elements of TVET to Egypt need to refer to the work regime. Consequently we were continuous searching during our different site visits to the how and whom of working together under what regulation and rules, which what kind of formal and informal hierarchy etc. (Wolf 2013a). So we could identify the beneficiary personnel for our training activities and understand the structure and rule of Egyptian construction work. In general we find a strong hierarchy on Egyptian construction sites, similar at the engineer level

but also at the level of the workforce. The work teams are organised in three partied structure of a skilled, a semi-skilled worker and a hodman. The work organisation is divided in small sections, trades are smaller professions as in a German understanding of vocation. The workforce is supervised by foremen they headed the team of their own trades. One level up to the foremen we can find the supervisor who will chair different trades. Both of them have the right to advice changes in drawings and are the linkage between workforce and engineer corps. These workers are in reality the practical experienced personnel on-site but under the hierarchy of site-engineers mostly fresh graduates from universities. This tensional relation brings a lot of conflicts in the daily cooperation on site work. On the side of the workers the foremen and supervisors are responsible of recruitment and classification of new hired workers. On site work new workers are coming usually with a group of them under the auspices of a Raijes from one area to ask for working. The negotiation of hiring is between the Raijes and the foremen/supervisor. The workers are obliged to show their work performance by exemplary work task and the foremen decide if the concerned workers will get a classification as a skilled or semi-skilled worker or only as a hodman. And they are responsible for the upskilling and the improvement of the quality of the workers. The foremen does this work duties based on their experiences of work and informal learning. They decide based on the Egyptian code of practice, with their common understanding what means good work under Egyptian conditions.

Based on the here sketched insights of the work regime and with a deeper understanding of the Egyptian TVET system lead by the work culture approach we have decided to train these personnel. The first project step plans to carry out further training for skilled professionals at the company executive level, the above mentioned foremen, (not the planning engineers), to become trainers in professional qualification programmes. To this end, it was necessary to develop adapted training activities to be able to conduct these goals successfully. This professional qualification was implemented in the form of training modules. These modules can be interpolated to each other so that training certificates, which are officially recognised by the German authorities, can be granted to the successful programme participants (Wolf 2012b; Wolf 2012a; for more information see the web page: www.web-tt.org).

These training modules could be combined with innovative technologies to create a "leverage-effect" which enables the German providers, especially the ones coming from the modern water and energy supply and construction technology sector, to gain access to the Egyptian market. At the same time, it makes it possible for the WEB-TT project to incorporate the training expertise of leading market players from the different fields of innovative technologies into the development of adapted vocational training modules. These modules are then converted into packages that can be used in other countries in the region after they have been tested. It is furthermore planned to develop a marketing strategy from the vocational training modules, using them as export packages to promote the international activities of the participating German training centres and to open up new business fields.

3.2 Activities to identify the needed qualifications

As indicated above, due to the short time span of the prior phase for development studies, the first travels to Egypt to deepen contact with partners have served simultaneously as an opportunity for initial analysis of the situation of the construction site and the work processes. With the aid of German master-craftsmen coming from diverse construction trades, accompanied by vocational training academics, photographs have been taken, the construction work has been observed, and many expert-talks have been held with the managers and engineers of the construction company, covering a diverse array of questions about the development of adapted curricula. Later, these pictures were evaluated for the identification of specific qualification needs (Bohnsack 2008; Collier & Collier 2009). During our site visits we, the team members with a construction professional or craftsmen background, also did failure analyses of the constructions to identify in a first approximation the lack of skills and knowledge (Mahrin & Meyser 2013). In addition, structured expert-interviews have been conducted with construction engineers from German companies, who possess knowledge of the Egyptian construction sector. This helped to get a better understanding of the working processes on Egyptian construction sites, as well as to get external verification of the interpretations that had been made thus far.

In a next step, talks have taken place with local engineers and managers about technical tasks that are to be taught within the project. One shortcoming of the decision-making phase regarding the technical tasks to be trained within each of the professional fields was that it was not possible to conduct a proper work-process analysis on exemplary construction sites. But with the help of a comparative analysis of German training regulations for the in-company training of the dual apprenticeship system with the Egyptian Qualification Framework, it was possible to allocate the hitherto identified working activities on the Egyptian construction sites to the German in-company training curricula. This comparative approach helps at the same time to offer the strengths of the German inter-company training centres that specialise in the craft - namely their huge experience in the training of these skills and abilities - to international clients. However, further steps are necessary for adaptation to the needs of the company, as well as the conditions of the qualification activities. The process of adapting the programme to the needs of the company happens through dialogical coordination with the leading engineers and managers of the company. This coordination is flanked by an activity-analytical evaluation of materials, e.g. drawings, material lists, specifications, photos of construction activities and other technical documents that the contractor makes available. The adaptation to the requirements of qualification measures in Egypt is gained by a theory-based mix of methods from interviews and data analysis, in which the latter raises the context of the qualification measures. On the one hand, 'context' refers to the work culture background of vocational training in Egypt (Wolf 2011), while on the other hand, it also means the complex systemic-institutional requirements that directly influence the qualification measures and the requirements of the goods and

job market, which have an influence over the training measures (Wolf 2010a, p. 2640).

3.3 The didactic-methodical concept of 'training measures'

In contrast to the very common CBET-concept or other skill training "drills", it is the learning process and not the certified learning results (no matter how they came to be) that is the focus of German vocational training. Therefore, the WEB-TT consortium has decided, following evaluation of the hitherto existing data, to support the training measures with adapted medial clusters, in situ as well as locally and on the internet. Through this measurement, it can be ensured that the construction workers, who in Egypt have often only had a rudimentary school education and can barely read and write, can profit from qualification measures through the use of images and explanatory audio-material. The specific training-measures are laid out in the first step for individual tasks of different craft groups, such as plumbers, tilers, plasterers, bricklayers, drywall builders and roofers. Because a completely different organisational structure exists on the Egyptian construction sites, in comparison to the German ones, and at the same time the qualification requirements and the conceptions of the necessary qualifications are so different, it is self-evident that it is not possible to become qualified in a 'vocation' (Beruf) according to German vocational categories. The Egyptian concept of qualification is strongly oriented towards on-the-job-qualifications with narrowly defined activities and tasks according more to the logic of the CBET. The participating German inter-company training centres, however, are easily able - based on their daily operations which consist in the realisation of training regulations for in-company training - to deliver training activities that meet the skills, knowledge and competencies that construction work qualification in Egypt requires. The detailed selection of these would be defined through a dialogue process with the partner companies.

With our understanding of the work regime and also of the social actors on the construction site, the above described foremen and their capabilities and their needs, too to solve problems, we decided to shape the arrangement with a didactic approach based on problem solving. The didactic-methodical arrangements are based on specific work tasks that are designed to be problem-containing learning and work assignments (Howe & Berben 2006, p. 387 f.). The learning structure of the task is based on the didactic construct of "complete action", consisting of six learning steps: information gathering, planning, decision-making, implementation, monitoring and evaluation. Thus, on the one hand it is ensured that the training programmes meet the high problem-solving skills of Egyptian construction workers, and on the other hand, it also allows the transfer of new knowledge and skills to complement the established patterns of activity of the professionals with practical experience.

We did two pilot trainings in different trades of the company. First we did the training with plumbers and with plasterers. All of them were foremen with specific

professional responsibility towards their trade and practical experiences. The groups during the second pilot were supervisors without specific professional trade responsibilities with only less practical experiences. Differences occurred between the two groups' performances and an adjustment of our training activities towards the different target groups from the workforce is needed.

Our concept takes reference on the German legal regulation of training activities. We pay attention to the German regulation of in-company trainer certification, the so called AEVO (Ausbildereignungsverordnung). Our training follow the regulation in activity field three of the AEVO, "Deliver a proper training" and we train the foremen in a two week course to understand to organise training and teaching activities acting intentional and with conceptual thoughts. The basis of our training was training material in written form combined with multi-media, including digital media. The training of the new didactic-methodological approach was done in the professional field of the foremen, but with the precondition that they must have a large practical knowledge to act properly and to understand the approach of complete action method. Without these preconditions it would have been complicated for them to get a deep understanding of the training methods we taught them. During the training of the second groups - the participants were supervisors with only small practical experiences in the specific profession - it showed that to achieve a better performance in understanding the training methods we should improve their capacities to become more familiar with the practical professional skills and knowledge. For this personnel it would be better deliver in advance a short time professional training course in the specific trade, two or at max. three days long. After the successful completion of a final exam of our course of an in-company trainer we were confident that the foremen supported with only short courses in specific technical of professional topics of its trades they will deliver proper training to the workforce they monitor. This training carries with it the idea of improving the quality and an increase of the work rate. However due to the turbulences of the Egyptian economy, the consortium WEB-TT was not able to monitor and supervise the follow up activities of the WEB-TT trained foremen on-site to improve the work quality of their subordinates to show the nexus between proper training and the increase of quality and work rate. At the end of the project in summer 2014 the huge company OCI was not willing to invest own money in the continuation of the workforce improvement by international cooperation but as already hereinabove noted the company continue the improvement of the workers quality by their own means but based on the common experiences with foremen training to become an experienced in-company trainer. With additional money from international donor agencies we are hopeful that the WEB-TT consortium will come back into the game.

Conclusion and outlook

As demonstrate above the concept of work culture is a useful toolkit to understand better a foreign system of TVET. Also the concept of stages in policy borrowing in education of Phillips and Ochs is a suitable theoretical approach to work properly a policy transfer project. In the R&D project WEB-TT the different approaches are successfully use to entangled culture and vocational training. They operate as a theoretical-practical guideline to orient and to shape properly adapted training activities. On a more general level, in the cycles of policy transfer of education the concept of work culture, give us a method to enlighten the more diffuse expressed cultural context in which TVET transfer activities are embedded and clarify what is meant by context of TVET. The six dimension of work culture can be used like an orientation frame to look more deeply but in faster track into the structures and mechanism of a given foreign TVET system. The cycle of education transfer with its four steps become a little bit clearer and more suitable by integrating the work culture in the steps using as a heuristic to reduce and clarify the forces of context affecting the process of policy borrowing. In the hereinabove described experiences of WEB-TT in the main we focused of the understanding of the Egyptian context and regulation by our work culture approach. Unfortunately we considered less into the process of transfer the German elements of TVET to our Egyptian partners, but as mentioned above in the chapter of the stages of policy borrowing in education the insight we might have had in proper reflecting of the stages and the influences of context in each it opens only in a retrospective view. The core lack of our whole design and one key reason for the economic failure at the end of the project's funding the missing of a strong in company consultancy and advisory work package would have been more clearly during the project process as it was in reality. More attempt to deeper understand and to clarify on the steps of the policy transfer cycle after starting the process - the stages of decision – implementation – internalisation is needed. The cross disciplinary attempts and approaches similar to the prior done clarification with the work culture seem a promising way. Some approaches exist and are in different settings already tested (e.g. Rappleye 2006). Others have to be developed. We need more theoretical-practical TVET transfer activities to analyse and reflect ex-post to strengthen specifically the knowledge concerned to transfer activities towards developing countries. The stages of policy borrowing in education is a good tool but need more effort to sharpen and confect the tool to this concerned countries. However, the starting point is reached.

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