ANNE BUSIAN & THOMAS SCHRÖDER
(Technical University of Dortmund/ Germany)

Vocational Teacher Education at Technical University of Dortmund/Germany – recommendations for interoperability of regional standards and local operation in the ASEAN-region

Abstract

The continuing discussion on the requirement to standardize the vocational teacher education (VTE) and technical and vocational education and training (TVET) is evidence of its relevance for a continuous societal and economic development and the sustainable betterment of the livelihoods of 608,000,000 people in 10 nations within the Association of Southeast Asian Nations (ASEAN). At the political level, standardization and harmonization are claimed to be a precondition for the mobility of lecturers, students and skilled workers. The free movement of people is a precondition for the establishment of the ASEAN Economic Community 2015 and hence an urgent development target for a regional approach in VTE (Gennrich 2015, Schröder 2013). But what does the requested standardization practically and structurally imply for a politically, socially, economically, and culturally diverse region as Southeast Asia? Could elements of organizational structures and procedures of a federally organized educational sector as in Germany serve as a micro model for vocational teacher education in the ASEAN region?

This article describes the structures, organization and operation of vocational teacher education at the Technical University of Dortmund and its local cooperation partners, which has to respect both: local specifics and national standards for teacher education, which were developed and implemented under the condition of a federally organized system. What political and operational structures and procedures need to be interlaced in order to achieve a sustainable impact on operational level? There are regional organizations for TVET and VTE in Southeast Asia, namely the Southeast Asian Ministers of Education Organization (SEAMEO 2015) and the Regional Association of Vocational Teacher Education in Asia (RAVTE 2015), who undoubtedly bring together the competence to develop common standards, who have national and regional political backing and the operational structures to achieve an impact on the implementation level. Other intergovernmental organizations, like UNESCO, conducted important basal work 10 years ago, which will prove to be supportive, if taken into account.

The article concludes with recommendations, intending to contribute to an efficient interoperability of political and operational structures in the ASEAN-region, which achieves standardization and respects diversity.

1 Introduction

Vocational Teacher Education (VTE) in Southeast Asia faces high requirements with respect to quantity and quality of vocational teachers in a rapidly developing socioeconomic environment in the worlds´ most dynamic and culturally diverse region. Vocational teachers, i.e. TVET-teachers, are being educated at technical universities or universities of education that include technical departments (RAVTE 2015). The education of excellent vocational teachers is a precondition for the development of efficient TVET-systems, especially if young TVET-teachers are understood as Agents of Change (Numyoot/Schröder 2012). It is the highly relevant societal role of TVET-systems to educate and to train a highly skilled work force, which is required by the labor market and thus contributes to the ongoing development of the economies and thus societies in the ASEAN-region (Schröder 2013), especially in the wake of ASEAN Economic Community 2015 (Gennrich 2015). The ASEAN-region has developed a vast diversity of different systems for vocational teacher education with multiple ministries being responsible at national level (Paryono 2014). ASEAN and the Southeast Asian Ministers of Education Organization (SEAMEO) strive for common standards in education, being supported by the Regional Association for Vocational Teacher Education in Asia (RAVTE), which is focusing on standardization in vocational teacher education and research on vocational education. RAVTE is a non-governmental organization, an expert network (Schröder/ Carton/Paryono 2015) and a platform of 22 universities that are involved in vocational teacher education, and thus has an interest in the standardization and harmonization of vocational teacher education as an element of its Strategy 2015-18 focus (RAVTE 2015b).

With the forthcoming establishment of the ASEAN Economic Community 2015, this article will provide a timely insight on organizational structures and standardization of vocational teacher education in Germany as a possible source of suggestion for future development of vocational teacher education in ASEAN. The following article is providing insight in the organizational structure of vocational teacher education on the interaction between the federal level and the level of the federal states (Länder). On the local level, the interaction of the involved stakeholders in vocational teacher education in Dortmund, a town in the North Rhine Westphalia, will be exemplarily described. Finally, recommendations will be suggested for the organization of a regional standardization of vocational teacher education that allows diversity and adapted specifics on the local level.

2 Vocational Teacher Education in Germany – a blueprint for a decentralized and federal system in ASEAN-region?

Germany is a federal state, which comprises of 16 *Länder* (states); both the Federal Government and the *Länder* share legislative power, and education is under the legislation of the *Länder*. The *Länder* operate the *Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany* with its secretariat in Berlin. The secretariat initiates, with the participation of delegates from the *Länder*, the development of standards and frameworks, which form a basis for the mutual recognition of certificates. The Federal Government is operating the

Federal Ministry of Education and Research (BMBF), which is not actively involved in the operation of the education system. The development of curricular frameworks and competence-oriented standards for teacher education (KMK 2004) is fully under the responsibility of the *Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany* (Kultusministerkonferenz – KMK 2015).

Although vocational teacher education at universities in Germany has a 60 year history, the system of vocational teacher education is under continuous scientific discussion, reflecting divergent approaches, perspectives and innovative developments (Becker, Spöttl, & Vollmer 2012; Spöttl 2010; Faßhauer 2012; Glöggler et al. 2013; Schütte 2013; Hartmann & Niethammer 2015; Busian 2015), to name just a few. The system continuously needs to adapt to changing economic and societal requirements and other socioeconomic trends. Since its establishment at universities, vocational teacher education has undergone several development phases (Schröder, Schulte & Spöttl 2013) and in its present iteration it reflects, to a certain extent, the demands of the local economy and cultural diversities, and even the organizational structure of the universities (Lipsmeier 2014). With respect to the development of VTE-systems, it is informative to see, the phases the system underwent during its development process in the past six decades; a system that is often asked to be transferred to other societies, without the development process being understood as an integral part of the transfer (Schröder 2015).

Furthermore, and depending on the political situation in the various German federal states (*Länder)*, different types of teachers at vocational schools have emerged, reflecting different areas of expertise with respect to praxis and theory. Lipsmeier (2013) provided a comprehensive overview, systemizing the different types within the group of teaching personnel in vocational education in Germany. The article perfectly demonstrates the diversity of the entire TVET-system with respect to TVET-personnel.

Vocational education is an academic discipline at universities in Germany. Research is being conducted by those Institutes that are in charge of vocational teacher education. The self-reliant research activities within the academic discipline are creating research-based evidence that provides the basis for ongoing development, adaptation of changes, and political reform. It is an inherent concept of science to contribute to a positive development of society and society in return guarantees degrees of freedom, which are a precondition for research activities that lead to evidence-based policies.

The scope of work of vocational teachers in the TVET-system

The scope of the work of vocational teachers is with respect to the band width of their target groups the most demanding of all teaching professions in Germany. Vocational teachers are expected to teach target groups from level 1 to level 6 of the German Qualification Framework, which comprises of 8 levels (BMBF 2015). The assignment of vocational teachers at vocational schools depends on the studied major subject i.e. vocational disciplines. Most vocational schools expect their teachers to combine vocational theory and vocational praxis within their studied vocational discipline. In Germany, there are approximately 350 officially

recognized occupations in the dual TVET system, where apprentices work and are being trained in a company and attend a vocational school for an average of 12 hours per week. The entire duration of the TVET-programs is in most cases 3 years. Vocational teachers teach apprentices in occupations which match the studied vocational discipline. A vocational teacher who studied mechanical engineering will for example teach - to name just a few - industrial mechanics, plant mechanics or mechatronics, whereas teachers, who studied economics i.e. business as a subject, will teach commercial and trading occupations e.g. bank clerks or office-managers. Additionally, German vocational schools offer a variety of school leaving certificates, e.g. a vocational high school, where students can achieve a higher education entrance qualification in a vocational context. In another branch, vocational teacher work with unemployed pupils, who have not yet managed to find an in-company apprenticeship within the Dual System. The German TVET-system is designed to educate for the labor market and also to offer further education for those who underwent an apprenticeship and intend to proceed in their career, or simply to offer an alternative pathway for dropouts from the general education system. It is possible that vocational teachers will teach technicians on level 6 from 8 to 9.30 am and from 9.50 to 11.20 a class of carpenter apprentices and from 11.50 to 13.20 a class of dropouts, who hold no certificate from the general education system at all.

As the above example indicates, the TVET-system and thus the system of vocational teacher education in Germany have to embrace a tremendous diversity: six levels, numerous economic sectors, cultural diversity and the adaptation of socioeconomic change. The diversity sometimes appears to be chaotic, but we recommend regarding it as evidence for a successful adaptation of different requirements from local economies, cultural diversity and different economic sectors and target groups. Diversity is rather a strength than a weakness. **Standards for vocational teacher education, which have to be developed, will have to set a framework that allows for diversity.**

3 System and structure of Vocational Teacher Education in the City of Dortmund in North Rhine Westphalia

In Germany, North Rhine Westphalia (NRW) is the largest State by population with 16 million inhabitants. Located in the central region of NRW, the "Ruhr Area", has 53 cities stretching from Dortmund to Duisburg. This region which is the largest economic area in Europe has had to undergo severe structural and economic changes during the last decades. Whereas until the 1960s the Ruhr Area was mainly famous for its coal, iron and steel industries, the decline of these heavy industries required an orientation towards service and modern industries such as environmentalism or high technology.

Nowadays the Ruhr area which has a long tradition of immigration from many parts of Europe and which was voted "Europe's Cultural Capital" in 2010, also strives for trademarks such as culture, education and service (Metropole Ruhr 2015). Since the 1970s, many institutions of higher education have been founded, such as six university and nine Universities of Applied Sciences.

Organizational structure of and cooperation partners in VTE

The education and training of vocational teachers comprises specific preconditions and 2 different phases. The general structure is identical in all German *Länder*. The preconditions are a university entrance certificate and 12 months of practical vocational hands-on experience (KMK 1995/2013), which can be acquired through work in a field of industry that corresponds with the major subject i.e. vocational discipline to be studied. Many of the students pass a complete 3-years-apprenticeship within the Dual System before starting their studies.

The ***1st phase*** of the vocational teacher education is a B.Ed.&M.Ed.-study program at a university, which primarily focuses on studies in the chosen subjects and in educational science. The study programs at universities are operated under the Ministries of Higher Education (MoHE). The M.Ed.-certificate is the precondition for being admitted to the ***2nd phase***, which is primarily a one and a half year practical training at a vocational school, being operated by the Ministries of Education. The MoE in NRW operates ***Centers for Practical In-school Teacher Education (ZfsL)***, which are responsible for the 2nd phase, which is in Asia occasionally called "post-study pre-service phase" (Kurnia 2013), and for the further training. The training aims at achieving competence development in teaching through coaching and theory-based reflection of experiential learning. The students receive a one and a half year contract for the duration of the 2nd phase and a small salary. After the successful completion of the 2nd phase, which ends with a thorough assessment of relevant competences, the MoE decides upon the long term employment of the young teacher, which eventually may lead to a well-paid "iron rice bowl" i.e. lifelong employment with the status of a civil servant. The certificate from the 2nd phase, which is a state examination under the legislative of the *Länder*, is acknowledged by all 16 *Länder*.

In Dortmund, the study program for vocational teacher education comprises of 10 semesters (BSc/BA and MEd) and is organized and conducted by the ***Technical University of Dortmund***. Whether the students are awarded with a Bachelor of Science or a Bachelor of Arts depends on the subjects and vocational disciplines chosen. On the completion of the post-graduate phase of the program, the students are awarded a Master of Education certificate. The ***Center for In-school Practical Teacher Training*** (ZfsL 2015), which is one of 13 centers in North Rhine Westphalia, is in charge of the second phase of the teacher education i.e. training. Both institutions cooperate closely and align their operations and teaching content according to the Teacher Education and Training Act, which was released in North Rhine Westphalia in 2009.

Regarding the practical training the vocational schools are highly important. Each school has a mentoring system with experienced and trained mentors that support and consult young teacher in their second phase.

Structure of Vocational Teacher Education in NRW/Germany		
Precondition	1st phase at university	2nd phase at ZfsL
• university entrance certificate or adequate • mandatory: 12 months of practical vocational experience • full apprenticeship in vocational discipline will be acknowledged	• university program Ba and Ma of Education • BSc and Ma of Education • 12 semesters (6 Ba and 4 Ma) • theoretical content as a basis for professionalisation • practical semester in cooperation with ZfsL	• 18 months of preparatory program • practical training and mentoring program, at vocational schools, theory-based reflection and coaching • state certificate as a precondition for employment at state-run vocational school

Figure 1: Structure of Vocational Teacher Education in North Rhine Westphalia/Germany

The three directly involved learning places, which are responsible for Vocational Teacher Education, cooperate on a regular basis. Representatives from the Technical University of Dortmund, the Center for In-school Practical Teacher Training (ZfsL) and representatives from the vocational schools conduct regular meetings in order to coordinate their activities, exchange experiences, and to discuss innovations.

4 The study programs in Vocational Teacher Education at Technical University of Dortmund

The Technical University of Dortmund was founded in 1968 and is a major player in achieving change in the economic structure of the region, being a hub for technological innovation and spinning-off start-ups. The university comprises 16 faculties, with 6,200 staff and 32,800 students in more than 80 study programs.

During the past decades, vocational teacher education at Technical University of Dortmund had to react to changes in societal and economic demands, adapt new paradigms in vocational didactics, introduce additional programs and to continuously improve its effectiveness, strengthening the combination of both theory and praxis in vocational teacher education.

An evidence-based precondition for the continuous development of vocational teacher education for the formal TVET-system, as well as for in-company training, and the synchronization of both, is the conduct of research on vocational education. This research is being conducted by the chair of Vocational Education at TU Dortmund. Both authors are presently working at the chair and in charge of vocational teacher education.

4.1 The “consecutive” Bachelor-Master-program of Vocational Teacher Education

The traditional Bachelor-Master-Program of Vocational Teacher Education at Technical University of Dortmund addresses students with university entrance certificate and a minimum of

practical vocational experience of at least 12 months. Experience shows that many students have completed a full apprenticeship, which is a three year vocational training within the Dual System, before enrolling for the study program.

As a result of the Bologna-process and the Bologna-Declaration, which aimed at the establishment of a common *European higher education area* and which was signed by 29 states (European Ministers of Education 1999), the Technical University of Dortmund changed its vocational teacher education in 2005 into a Bachelor program of six semesters and a Master program of 4 semesters (Geerkens, Pätzold, & Busian 2005). Additional adaptations had to be undertaken, following the Teacher Education and Training Act released in 2009 in the State of North Rhine Westphalia. The vocational disciplines offered include Mechanical Engineering, Electrical Engineering, Social Pedagogy and Sciences of Business and Administration. Students have the opportunity to choose their major subjects along following combinations:

- two vocational disciplines or
- one vocational disciplines and one general subject (e.g. German, English, Religion etc.) or
- two general subjects, if one of them is a STEM[1]-subject.

One of the two chosen subjects may be substituted by a program in special needs education (SNE). The broad variety of possible combinations acknowledges the enormous heterogeneity among the learners inside the TVET-system with its various qualification levels and numerous vocational disciplines. The Bachelor-Master-program aims at preparing the students for their future profession as vocational teachers. Internships at vocational schools are an integral part of the study program; wherein experiential learning is reflected and combined with theory.

[1] STEM is an acronym of science, technology, engineering, and mathematics.

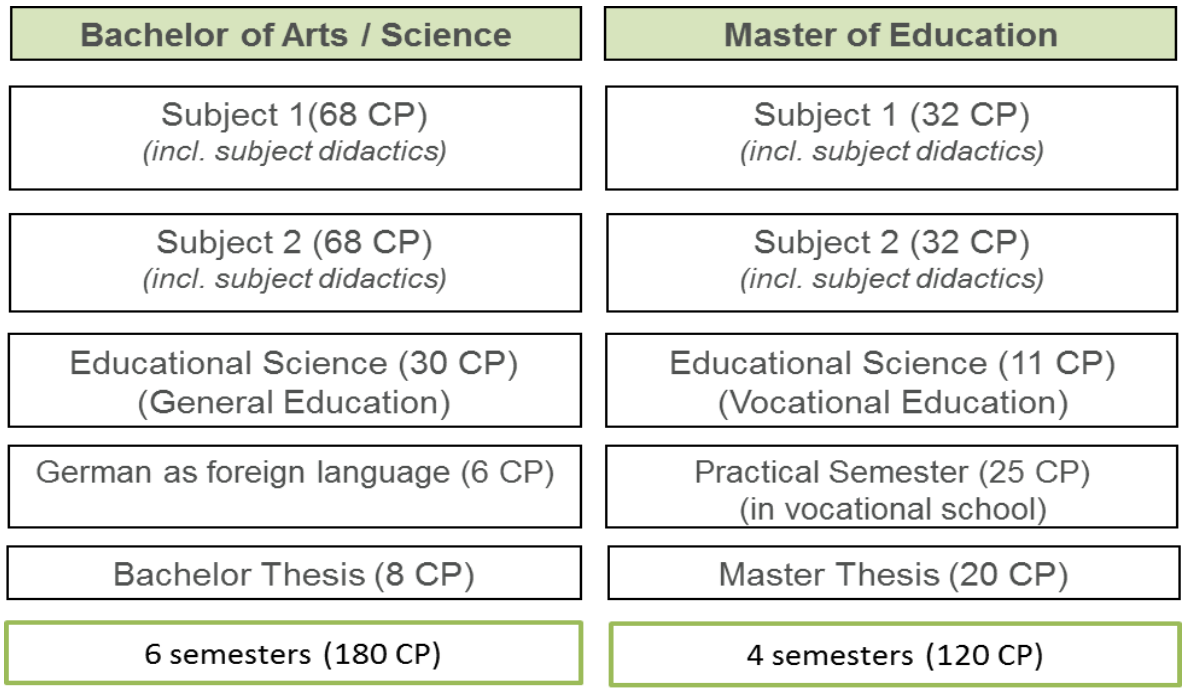

Figure 2: Program of Vocational Teacher Education at the TU Dortmund

The BSc/BA-MEd-program of vocational teacher education at the Technical University of Dortmund is structured as shown in the above figure. The core of the study program comprises two ***major subjects*** (vocational disciplines/vocational field or general subjects), for example "Mechanical Engineering" and "English". Subject didactics, which derive from the special didactical requirements of the specific subject, are courses within the responsibility of the major subjects like mechanical engineering.

In ***educational science*** general educational topics and educational theories are being lectured, experienced and reflected. Students attend courses on structures and systems of formal education, theory of educational philosophy, educational psychology and general or vocational didactics. Special seminars focus on the preparation for and reflection of practical in-school phases or internships like the *praxis semester*. Moreover, additional modules on "German as a Foreign Language" are mandatory in all teacher education programs in North Rhine Westphalia, as a reaction to the growing number of non-native speakers of the German language entering the education system.

The Bachelor-programs at the Technical University of Dortmund are almost identical for those students who want to become high school-teachers within the general education system and for TVET-teachers. However, the Master-programs vary considerably. TVET-teacher students receive modules and courses on the specifics of ***vocational education***. Apart from theoretical courses, there are praxis phases, which are an important element of the study program. The most important practical phase is the so-called ***Praxis Semester*** (MSW 2010), which will be described below.

The number of students entering the traditional Bachelor-Master-program is regulated. The numbers of beginners in the Bachelor-program varies between 120 and 150 annually. The majority of the students enroll for the majors "business" and "social pedagogy". As a result of the societal development in Germany, there is presently in vocational teacher education a lack of students in mechanical engineering, electrical engineering and STEM subjects. At present, from the first to the sixth semester of the BA-program for vocational teacher education there are only 20 students enrolled in mechanical engineering and 13 students in electrical engineering, which is 6% of all students in the BA component of the consecutive Bachelor-Master-program of vocational teacher education at Technical University of Dortmund. The limited number of students enrolling for mechanical or electrical engineering within vocational teacher education is a problem prevalent in the whole of Germany.

4.2 The "non-consecutive" Master-program of Vocational Teacher Education for BSc Engineers

The most pressing problem of the TVET-systems in Germany is that there is a shortage of vocational teachers in mechanical and electrical engineering, which is consequently mirroring the shortage of skilled workers (level 4 of German Qualification Framework), technicians (level 5) and BSc and MSc engineers in mechanical and electrical engineering (level 6 and 7). The situation in the labor market leads to rapidly increasing salaries in the industry and since the State cannot offer competitive salaries there is a reduced readiness to study vocational teacher education in the area of mechanical and electrical engineering. The entire situation leads to a shortfall of qualified vocational teachers and eventually a decrease in quality, which in return is even enhancing the problem with respect to the education of skilled laborers and thus harms the prospect of economic development. According to an expert study group, which was assigned by the NRW Ministry of Education, the eight universities in NRW, which are involved in VTE, presently cannot produce sufficient vocational teachers within the aforementioned vocational disciplines (Expertenkommission Berufskolleglehrkräftesicherung 2013).

In order to contribute to the ***solution of the problem***, the Technical University of Dortmund offers an additional MA-program in vocational education, which targets students who intend to become TVET-teacher and who hold a bachelor degree in Mechanical Engineering and Electrical Engineering from a University of Applied Sciences or another Technical University with some of the candidates having worked after their BSc degree for years in the industry. The Master of Education for this specific target group was first offered in October 2014. The initial results are extremely promising. In the course of the three semesters 36 students have enrolled and are showing an extremely high motivation to successfully finish their study program as soon as possible. Since the students hold a Bachelor of Science (BSc) and thus have an engineering background, the Master of Education provides comparatively few courses on the engineering subjects, i.e. vocational disciplines themselves. The MA-program focuses on elements of educational science, vocational education and subject didactics in combination with internships and the ***Praxis Semester*** at vocational schools. This specific group of students provides very heterogeneous learning and working biographies. Before their engineering

studies the majority of the students underwent an apprenticeship within the German Dual System /or acquired additional work experience from industry as a skilled worker or as an engineer. Therefore, a special focus has to be laid on the question, if the students with an engineerial background are going to manage the individual change from an "engineer", who is primarily focusing on the solution of technical problems, amenable to the laws of physics, towards a vocational teacher, who focuses on the competence development of individuals with their deficits, irrationalities and mostly unforeseeable behaviors. ***This change is the main challenge*** for the students and for all stakeholders, which are involved in the processes of vocational teacher education.

In order to achieve this individual change of perspective the "Master of Education" envisages a close combination of theory and practice. A series of practical phases at vocational schools and a theory-based reflection of the experiential learning ensures that the students are given the chance to shift their perspective towards the learner and to develop a habit of continuously and flexibly adapting to new situations..

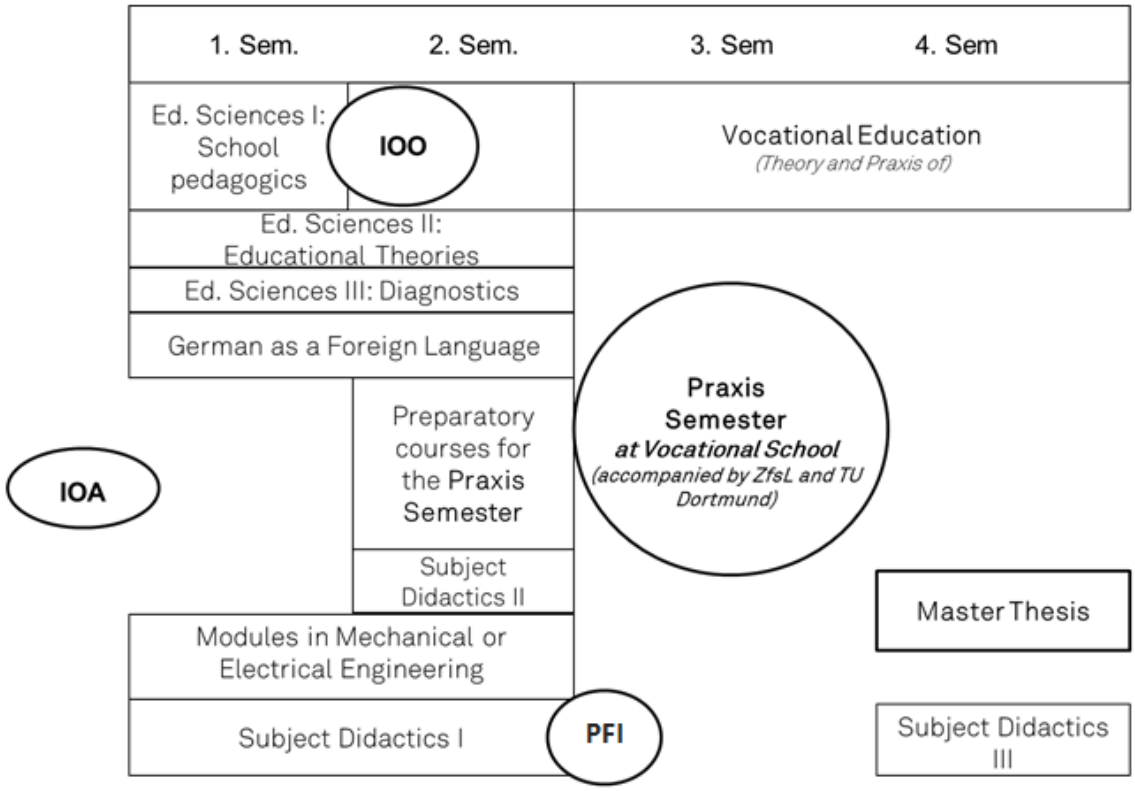

Figure 3: Master in Vocational Education for BSc in Mechanical and Electrical Engineering

The Master of Education program contains following practical phases:

- The "Internship of Occupational Aptitude" **(IOA)** has a length of four weeks. The student has to complete it before the study-program starts. It is mandatory for all teacher students and teaching professions. The student has the chance to explore his or hers occupational aptitude with respect to the vocational school as the future working place

and the learners within the vocational system as target group. The vocational school provides thorough feedback to the intern at the end of the internship.

- The "Internship of Occupational Orientation" **(IOO)** serves the ideal of combining theory and praxis. The internship has a length of 4 weeks and is designed for the student to acquire first-hand teaching experience and experience in other fields such as observation of lessons, participation in conferences and giving advice to parents or companies, to name just a few. The internship has to be prepared and reflected in a seminar at TU Dortmund. The student has to write a report about his or her activities and experiences.

- The "Professional Field Internship" **(PFI)** refers to an in-school or in-company theory-practice phase, which aims at broadening other prospects outside the teaching profession. The internship is accompanied by a preparatory seminar in subject didactics. Since most students of this MA-program have acquired industry working experience, this is regularly acknowledged.

- The most important practical phase during the study program is the so-called "***Praxis Semester"***, which is a structured and mentored 5-months-internship at a vocational school. The Praxis Semester is prepared and accompanied by courses in *Vocational Education* and in *Subject Didactics* in close cooperation with the *Centre for in-school Practical Teacher Training (ZfsL)*. The students have the chance to gain and to reflect experience regarding action-oriented learning and teaching, their role as a teaching person and approaches to innovative forms of classroom management. The habit of reflecting on experiences with scientific method, processes, and instruments is a major target of competence development.

Experience shows that the combination of theory and praxis i.e. the structured initiation of experiential learning contributes largely to a better understanding of educational theory and the enhancement of the individual competence development of the students. Furthermore, the different institutions: the university, the ZfsL and the vocational schools, profit from cooperating closely and thus learning from each other, which largely contributes towards a continuous improvement of the overall system of vocational teacher education.

5 Recommendations for a Regional Standardization and Local Coordination of Vocational Teacher Education

In the lead up to the ASEAN Economic Community 2015 and considering the culturally and economically diverse situation in the ASEAN-region, which is reflected in the variety of the vocational teacher education in the region, the present situation of VTE in Germany offers certain proven instruments and procedures that might contribute towards an enhancement of vocational teacher education in the ASEAN region. Hence the authors suggest that on both, the political level, represented by ASEAN-secretariat and SEAMEO, and on the level of operation of vocational teacher education, represented by RAVTE and its member univer-

sities, not only cooperate, but align their policies for vocational teacher education in order to increase the impact on innovation, standardization and mobility within the region.

The ***development AND operational implementation of common standards*** for vocational teacher education, which serve as a quality framework, is a precondition for the mobility of students and lecturers and for mutual recognition of learning outcomes and qualifications. The Regional Association for Vocational Teacher Education in Asia (RAVTE 2015) as the leading association for universities, which are involved in vocational teacher education in Southeast Asia, and the Southeast Asian Ministers of Education Organization (SEAMEO 2015) should closely cooperate in the development and operational implementation of common standards in order to combine the strengths of both at the political level and at the operational level. Instruments and procedures of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (Standing Conference or KMK) with its 16 MoEs, which represent the specific interests of their states, have proven to be effective and to have a sustainable impact. We recommend conducting an analysis of the mechanisms of the "Standing Conference" and an evaluation of the possibilities of a transfer of these instruments and procedurs while respecting the given organizational structures in SEA.

Subject areas, i.e. vocational disciplines, for vocational teacher education need to be defined and agreed on, in order to achieve a *horizontal standardization*. Previously the Hangzhou declaration (UNESCO UNEVOC 2004) was achieved by UNESCO in cooperation with delegates from a number of states with respect to defining vocational disciplines. The Bandung-declaration (2008), based on an international TVET conference at Universitas Pendidikan Indonesia, endorsed the intention of the Hangzhou-declaration. Since this previous work is based on international best-practice and experience, it is highly recommended that these Declarations be considered in the development of the required horizontal standards.

Diversification of teaching professions: A TVET-sector that incorporates vocational schools and colleges, training centers and in-company training, that offer programs ranging from mainly theoretical lessons to predominantly practical lessons, could be a path towards more diversification within the TVET-systems (Lipsmeier 2013). This would address the various requirements diversifying to *vertical standardization*. A common structure of different outcome levels could form a basis for a certificate system that will attract practitioners and open pathways that eventually lead towards Master-level or even PhD-level. Possible pathways through this system should be outlined clearly and offer transparent vertical and horizontal mobility for TVET teaching professions.

Vocational Education or Vocational Pedagogy needs to be implemented as a ***self-reliant academic discipline*** throughout the region, which will lead to a continuous enhancement of research activities on vocational education. This will result in reforms and the improvement of vocational teacher education and TVET-systems. The implementation of vocational education as an academic discipline is a precondition for ***PhD programs*** and in consequence for regionally initiated continuous development of TVET-systems and vocational teacher educa-

tion. The Thanyaburi statement from 2013 asks for such a crucial step. It was signed by all relevant regional organizations such as ASEAN University Network, UNESCO Bangkok, SEAMEO VOCTECH, and Colombo Plan Staff College for Technicians Education (CPSC) and the group of universities that founded RAVTE in March 2013 (RCP 2013).

Common study programs in vocational education within the ASEAN-region and beyond will eventually be a means to live up to common and to international standards on an operational level in a timely manner. Furthermore, it will enhance the exchange of students and lecturers, which will lay a basis for an increasing regional cooperation. RAVTE provides an organization that has all the necessary requirements to implement such a regional study program, preferably in cooperation with universities from other world regions that could provide support, if required.

Praxis orientation in study programs is crucial for the quality of vocational teacher education as the above example of the Technical University of Dortmund shows. Praxis orientation needs to be addressed from two directions. How can ***practitioners*** from industry be encouraged to participate in vocational teacher education programs and how can ***practical phases*** in *companies* and in ***vocational schools*** be integrated in meaningful study programs? The combination of theory and praxis and the reflection of experiential learning, the generation of individually generated knowledge and its linkage to educational theories are sustainably enhancing individual competence development and contributing to the ongoing development of TVET-systems.

There is a need to strengthen or ***establish local teacher-training-networks*** of universities, vocational schools, industry and other relevant stakeholders (e.g. practical teacher training institutions) in order to create a sound organizational structure for the integration of in-company training phases for practical vocational competences and in-school training phases for the acquisition of practical teaching experience.

The VTE at TU Dortmund exemplarily shows in the context of Germany as a federal state that a locally relevant VTE can be established and developed in the context of respecting standards that were developed on a national level; standards that have to serve the socio-economic interests and cultural diversities of sixteen quite different *Länder*.

The political and the operational structures and organizations in the ASEAN-region are prepared to take the necessary steps, if they receive a clear assignment from and the backing of the national political level. But what is the choice? The AEC 2015 requires adequate measures in the vocational educational sector that will finally lead to the improvements that pose a precondition for ongoing societal and economic development. The political intention and support is essential for the implementation of sustainable steps that will lead to an enhanced ASEAN Economic Community and the prosperity of its people.

References

BMBF (2015). DQR-Niveaus. Online: http://www.dqr.de/content/2315.php (retrieved 28.09.2015).

Bandung Declaration (2008). Bandung Declaration on TVET Teacher Education. In Dittrich, J., Yunos, J. Md., Spöttl, G., & Bukrit, M. (eds.). Standardisation in TVET Teacher Education. Frankfurt a. M.

Becker, M., Spöttl, G., & Vollmer, T. (eds.) (2012): Lehrerbildung in Gewerblich-Technischen Fachrichtungen. Bielefeld.

Busian, A. (2015). Studienmodelle für das Lehramt an Berufskollegs an der TU Dortmund - unter besonderer Berücksichtigung der Kooperation mit der 2. Ausbildungsphase. In Frenz, M., Schlick, C., & Unger, T. (eds.). Wandel der Erwerbsarbeit – Berufsbildgestaltung und Konzepte für die gewerblich-technischen Didaktiken. (in publication).

Dwi Fosa, N., Peinemann, K., & Schröder, T. (2015). Moving beyond talk-and-chalk-teaching - a holistic didactical approach to teacher training through trilateral cooperation between Germany, Indonesia and Myanmar. In: TVET@Asia, issue 5, 1-17. Online: http://www.tvet-online.asia/issue5/dwi-fosa_etal_tvet5.pdf (retrieved 23.07.2015).

European Ministers of Education (1999): The Bologna Declaration. The European Higher Eduation Area. Online: http://www.ond.vlaanderen.be/hogeronderwijs/bologna/documents/MDC/BOLOGNA_DECLARATION1.pdf (retrieved 25.09.2015).

Expertenkommission Berufskolleglehrkräftesicherung (2013). Sicherung der Lehrkräfteversorgung an den Berufskollegs in Nordrhein-Westfalen. Bericht und Empfehlungen der Expertenkommission. Online: https://www.schulministerium.nrw.de/docs/LehrkraftNRW/Arbeitsmarkt/Sicherung-der-Lehrkraefteversorgung-an-den-BKs.pdf (retrieved 20 Feb 2015).

Faßhauer, U. (2012). Zwischen Standardmodell und „Sondermaßnahmen“ – Rekrutierungsstrategien in der Lehrerausbildung aus der Sicht von Schulleitungen. In Becker, M., Spöttl, G., & Vollmer, T. (eds.) (2012). Lehrerbildung in Gewerblich-Technischen Fachrichtungen. Bielefeld, 281-300.

Geerkens, L., Pätzold, G., & Busian, A. (2005). Die Reform der Lehrerausbildung – Qualitätssteigerung oder Rückschritt? In: Der berufliche Bildungsweg, 9, 6-12.

Glöggler, K., Haasler, B., Herkner, V., & Schütte, F. (2013). Harmonisierung der Lehrerbildung für berufsbildende Schulen – ländergemeinsame inhaltliche Anforderungen für ein Studium der beruflichen Fachrichtung Metalltechnik. In: Die berufsbildende Schule, 65. Jg., H. 9, 247-254.

Gennrich, R. (2015). Regional Development, Harmonisation and Internationalisation of TVET in the wake of AESEAN Economic Community (AEC). Online: http://ravte.asia/wp-content/uploads/2015/09/RAVTE_Full-Paper.pdf (retrieved 28.09.2015)

KMK (2004). Standards für die Lehrerbildung – Bildungswissenschaften. Online: http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2004/2004_12_16-Standards-Lehrerbildung.pdf (retrieved 26.09.2015).

KMK (1995/2013). Rahmenvereinbarung über die Ausbildung und Prüfung für ein Lehramt der Sekundarstufe II (berufliche Fächer) oder für die beruflichen Schulen. Beschluss der Kultusministerkonferenz vom 12.05.1995 i. d. F. vom 07.03.2013. Online: http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/1995/1995_05_12-RV_Lehramtstyp-5_.pdf (retrieved 05.10.2015).

KMK (2015). Kultusministerkonferenz. Online: www.kmk.org (retrieved 07.10.2015).

Kurnia, D. (2013). Post-Study Pre-Service Practical Training Programme for TVET Teacher Students. Online: http://www.tvet-online.asia/series/RaD_vol-1_Kurnia.pdf (retrieved 05.10.2015).

Lipsmeier, A. (2013). Approaches towards enhanced praxis-orientation in vocational teacher education (VTE). In: TVET@Asia, issue 2, 1-18. Online: http://www.tvet-online.asia/issue2/lipsmeier_tvet2.pdf (retrieved 30.12.2013).

Lipsmeier, A. (2014). Berufliche Fachrichtung als Wissenschaft (Berufswissenschaft) – Über den Export eines fragwürdigen deutschen Konstrukts in asiatische Länder. In: Zeitschrift für Berufs- und Wirtschaftspädagogik. 110, 3, 449-461.

Metropole Ruhr (2015). New insights into the Ruhr region. Online:

http://www.metropoleruhr.de/en/home/ruhr-metropolis/data-facts.html (retrieved 05.10.2015).

MSW (2010). Rahmenkonzeption zur strukturellen und inhaltlichen Ausgestaltung des Praxissemesters im lehramtsbezogenen Masterstudiengang. Hrsg. von den lehrerbildenden Universitäten des Landes NRW / Landesrektorenkonferenz und dem MSW. Online: http://www.schulministerium.nrw.de/ZBL/Reform/Wege_der_Reform/Rahmenkonzeption_Praxissemesters_Masterstudiengang/Endfassung_Rahmenkonzept_Praxissemester_14042010.pdf (retrieved 06.12.2012).

Niethammer, M. & Hartmann, M. (2015). Kooperative Ausbildung im technischen Lehramt. Kompetenzorientierte Lehrerbildung für berufsbildende Schulen im gewerblich-technischen Bereich. Bielefeld.

Schütte, F. (2013). Akademisierung und Professionalisierung der Berufsschullehrerbildung - Historische Stationen – systematische Argumente. In Bonz, B. & Schütte, F. (eds.): Berufspädagogik im Wandel. Baltmannsweiler, 130-157.

Numyoot, S. & Schröder, T. (2012). A Regional Approach to the Enhancement of Practical Vocational Competences of TVET Teachers – Challenges and Perspectives. Conference Proceedings, UNESCO Third International Congress on TVET.

Paryono, P. (2015). Approaches to preparing TVET teachers and instructors in ASEAN member countries. In: TVET@Asia, issue 5, 1-27. Online: http://www.tvet-online.asia/issue5/paryono_tvet5.pdf (retrieved 23.7.2015).

RAVTE (2015). Regional Association for Vocational Teacher Education in East and Southeast Asia. Online: www.ravte.asia (retrieved 26.09.2015).

Schröder, T. (2013). Vocational Teacher Education and Research as Regional Task and Challenge in East- and Southeast Asia. Online: http://rcp-platform.com/wp-content/uploads/media/RCP_Conference_Reader.pdf (retrieved 26.09.2015).

Schröder, T. (2015). Regional Association for Vocational Teacher Education in Asia (RAVTE) – A network for common innovation in teacher education and research on Vocational Education and Training in Asia (in publication).

Schröder, T. (2015). Transfer als ein Erkenntnis- und Entwicklungsprozess. Ein systemischer Bottom-up-Ansatz zum nachhaltigen Aufbau eines hochschulischen Berufsbildungsverbands in Asien (in publication).

Schröder, T., Carton, M., & Paryono, P. (2015). The world of TVET-networks – how international and regional networks contribute to the development of national TVET-systems. In: Background paper, Asia-Pacific Conference on Education and Training (ACET), 3. to 5. August 2015 in Kuala Lumpur, Malaysia.

Schröder, T., Schulte, S., & Spöttl, G. (2013). Vocational educational science. In: TVET@Asia, issue 2, 1-14. Online:

http://www.tvet-online.asia/issue2/schroeder_etal_tvet2.pdf (retrieved 30.12.2013).

SEAMEO (2015). What is SEAMEO? Online: http://www.seameo.org/index.php?option=com_content&view=article&id=90&Itemid=518 (retrieved 26.09.2015).

Spöttl, G. (2010). Berufliche Fachrichtungen als universitäre Fächer und deren wissenschaftliche Begründung. In Pahl, J.-P. & Herkner, V. (eds.): Handbuch Berufliche Fachrichtungen. Bielefeld, 106-123.

UNESCO UNEVOC (2004). UNESCO International Meeting on Innovation and Excellence in TVET Teacher/Trainer Education. Hangzhou Declaration. Online: http://www.unevoc.net/fileadmin/user_upload/pubs/Hangzhou-MeetingReport.pdf (retrieved 05.10.2015).

ZfsL Dortmund (2015). Zentrum für schulpraktische Lehrerausbildung Dortmund. Online: http://www.zfsl-dortmund.nrw.de/ (retrieved: 26.09.2015).

TVET@sia The Online Journal for Technical and Vocational Education and Training in Asia

CITATION:

Busian, A. & Schröder, T. (2015). Vocational Teacher Education at Technical University of Dortmund/Germany – recommendations for interoperability of regional standards and local operation in the ASEAN-region. In: TVET@Asia, issue 5, 1-16. Online: http://www.tvet-online.asia/issue5/busian_schroeder_tvet5.pdf (retrieved 28.10.2015).

The Authors

Dr. ANNE BUSIAN

Department of General Educational Science and Vocational Education
Technical University of Dortmund, Germany

E-mail: anne.busian@tu-dortmund.de

WWW: https://www.fk12.tu-dortmund.de/cms/IAEB/de/Berufsp__dagogik/Personen/AOR__Dr__Anne_Busian

Dr. THOMAS SCHRÖDER

Technical University of Dortmund, Chair for Vocational Education

Emil-Figge-Straße 50, 44227 Dortmund

E-Mail: thomas.schroeder@fk12.tu-dortmund.de

WWW: https://www.fk12.tu-dortmund.de/cms/IAEB/de/Berufsp__dagogik/Personen/Dr__Thomas_Schroeder/index.html

www.ravte.asia