

TVET Teacher Education in Myanmar on the Threshold of the 22nd Century – A Qualitative Analysis of the Present State of the Art

Content

List of Abbreviations.....	2
Abstract	3
1 Initial Situation in Myanmar	4
1.1 A Country on the Rise.....	4
1.2 Recent Status of Myanmar’s TVET System	4
2 Workforce-Development in Myanmar	7
2.1 TVET Quality in Myanmar	7
2.2 Measures Implemented to Improve the Situation.....	8
3 TVET Teacher Training and Vocational Pedagogy.....	9
3.1 The Importance of Vocational Pedagogy.....	9
3.2 Linking TVET Teacher Training and Vocational Pedagogy	10
4 Results of a Qualitative Field Research in Myanmar.....	11
4.1 Career Pathways of TVET Teachers in Myanmar	11
4.2 Pedagogical Qualifications TVET Teaching Staff.....	13
4.3 Practiced Teaching Approaches	14
4.4 Influencing Factors which Limit the Effectiveness of the TVET teachers’ in their Role as Multipliers	15
4.5 Suggestions from TVET Teachers to Improve the Situation	17
5 Conclusion.....	19
5.1 Problem at a Glance	19
5.3 Final Conclusion	19
Bibliography.....	21
Biographies.....	26

List of Abbreviations

ADB	Asian Development Bank
AGTI	Association Government Technical Institute
ASEAN	Association of Southeast Asian Nations
BMZ	German Federal Ministry for Economic Cooperation and Development (Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung)
CESR	Comprehensive Education Sector Review
DTVE	Department of Technical and Vocational Education
EFA	Education for All
GIZ	German Agency for International Development Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH)
GTI	Governmental Technical Institute
HDI	Human Development Index
ITC	Industrial Training Centre
MDGs	Millennium Development Goals
MoE	Ministry of Education
MoI	Ministry of Industry
MoLES	Ministry of Labour, Employment, and Social Security
MoST	Ministry of Science and Technology
NCHRD	National Centre for Human Resource Development
NSSA	National Skills Standard Authority
TVET	Technical and vocational education and training
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNEVOC	International Centre for Technical and Vocational Education and Training

Abstract

Too many vocational teachers and instructors enter their classroom and workshops without the benefit of a pedagogical background, although “[t]he effectiveness of any education system also strongly depends on the quality of interactions and relationships that occur between the teachers and students” (UNESCO-UNEVOC, 2012a, p.5).

Encouraged by the internationally recognised importance of pedagogical teacher training within the development of technical and vocational education and training, this work deals with an investigation on TVET teacher’s capacities regarding the implementation of pedagogic methods and didactics. Pursuing the answer to the question which teaching methodologies Myanmar’s vocational teacher utilise, qualitative data has been gathered by conducting interviews and observations with a target group consisting of teachers. The information was complemented by further details provided by experts like TVET teacher trainers, development advisors and school principals. Current trends in TVET and widely acknowledged notions as well as prevalent theories drawn from other Asian-pacific case studies furthermore served to underpin the collected insights gained by means of a field research. Likewise, this paper attempts to add to the collection of vocational education and training research by consulting a case in Myanmar – a country which currently possesses only a sparse amount of data in this field.

1 Initial Situation in Myanmar

1.1 A Country on the Rise

Without a doubt Myanmar has a huge development potential, not only because of its rich resources (Si Thu, 2011, p.157). Recently, the country's business climate is flourishing with an estimated growth of 7.7% in 2014, which will - according to anticipations - increase to 8.3% in fiscal 2015 (Devex, 2015). As Myanmar's economy has already embarked on a substantial upswing, the targets of the labour market concerning TVET systems are the development of a demand-driven TVET system and with it the widening of access to the labour market for workers as well as the quality assurance in TVET (ILO, 2014). However, holding rank 150 out of 187 countries in the 2014 Human Development Index (HDI) and with only ordinary progress towards the MDGs¹, Myanmar is classified by the United Nations as country with low human development (UNDP, 2014).

Since Myanmar's democratic elections in 2011 the constitution of a new civilian government opened up politics and economy so that the European Union was given a chance to resume its efforts (GIZ, 2012). With the opening of the country many economic sanctions were abolished and hence economy and industry have begun to grow increasingly. This has encouraged a multilateral international development cooperation which in the first place mostly aims at technical and financial cooperation. In terms of funding in TVET, it refers to the contribution of international partners and institutions through projects and programmes for the support of public or governmental activities (Ouédraogo, 2011, p.71). The Myanmar government is receiving support from many development partners since the isolation of the country from the global process is over. International development aid increased rapidly and reached with \$7.6 billion in 2013 the tenfold amount in comparison to the year 2009 (Devex, 2015). However, pertaining challenges along the process of developing technical capacities have decelerated the progress (ILO, 2014).

Education and vocational skills development in Myanmar's growing sectors is vital for a future sustainable development and growth. Potential sectors are manufacturing, construction and infrastructure development as well as hydroelectric, energy, and tourism (ILO, 2014, p.1). Nevertheless, as indicated by UNESCO (1973, p.15) in all branches there will be provably the same barriers to overcome just like in other countries, which started to develop their TVET sectors during the last century. In the education and vocational education sector these limitations refer to such as the lack of funds and resources for qualitative teaching or the reserved attitude towards TVET as well as few experiences in the field of the teaching staff.

1.2 Recent Status of Myanmar's TVET System

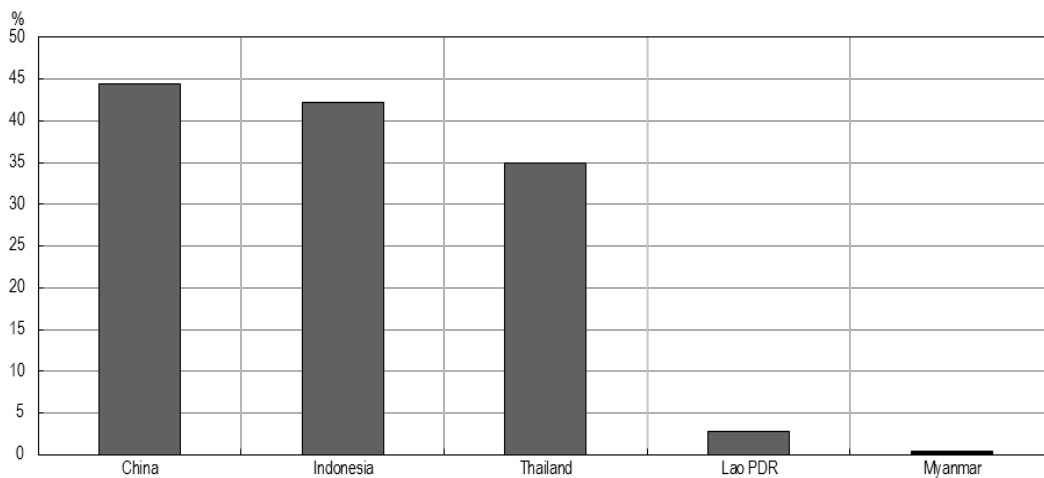
In 2010 only 47.0% of young people within the official age-group for secondary education were enrolled in such. The gross enrolment rate² for tertiary education in 2012 attained 13.4% (UNESCO-UIS, 2011). As plainly shown in the illustration, the technical and vocational

¹ The effective enforcement of TVET through a skills-for-all initiative adopts a special position in pursuing the agenda of the Millennium Development Goals (MDGs) and promotion of human development (Basu, 2011, p.20).

² The gross enrolment rate refers to the group of young people aged from the official secondary school graduation age which is about 12 years, until the age group five years older (UNESCO-UIS, 2012).

enrolment in Myanmar is far behind such rates in its neighbouring countries. With only 0.5% it is not even close to the still low TVET enrolment rate in Laos of 2.7% (OECD, 2014, p.122). This finding can be regarded unsurprising when considering that the government invests a low amount on education with only 0.8% (2011) of the gross domestic product (UNESCO-UIS, 2011). Expenditure rates in human capital are usually low and unequal in South Asia, which does not at all seem to foster a balanced education system nor does it support a sustainable and fair development of a TVET system (Panth, 2013, pp.200f.). Nevertheless, compared to the noticeable shortage of skilled workers in different sectors of the country, which implies the prevailing training needs, a tremendously low amount is spend on education and TVET purposes (Si Thu, 2011, p.152; OECD, 2014, p.123).

Figure 1: TVET Enrolment Rates at the Upper Secondary Level in Myanmar and Neighbouring Countries



Displayed as % of total enrolment: China: 44.5%, Indonesia: 42.3%, Thailand: 34.9%, Lao PDR: 2.7%, Myanmar: 0.5% (Source: OECD, 2014, p.122)

Promoting a higher quality in TVET or rather promoting TVET at all consequently seems to be an even more urgent need compared to upgrading university education because it rather meets the requirements of an industrialising economy such as that in Myanmar (OECD, 2014, pp.120f.). Although labour participation is said to be high in comparison to neighbouring countries, the real unemployment rate³ is unknown and especially youth unemployment is an increasingly severe concern (OECD, 2014, p.129).

Skills development is highly ranked on the agenda for sustainable growth in most Asian developing countries (Martinez-Fernandez & Choi, 2013, p.155) – likewise it is key component of Myanmar’s national strategy (ILO, 2014, p.41). According to the OECD (2014, p.123) computer and ICT skills, technical knowledge as well as creativity and initiative were mentioned as the most lacked competencies in all branches of the country. The latter might have been grown during the last half century when the society and its culture was controlled by an authoritarian

³ The official unemployment rate of 3,4% (World Bank, 2013) is in dispute since Myanmar’s parliamentary planning and finance development committee has published a survey in 2013 which assumes a possible unemployment rate up to 37% (OECD, 2014, p.129).

regime which did not grant enough space for creative ideas and self-determined initiative (ibid, p.124). TVET institutions, such as the six Industrial Training Centres (ITCs) in the country, will have to assume a crucial role by providing the service of preparing and qualifying workers for the industry, which is currently undergoing a significant change (ILO, 2014, p.29).

Similar to many other developing countries (UNESCO, 1973, p.50), the government in Myanmar has retained authority over the education system. In the formal sector, the Department of Technical and Vocational Education (DTVE) is mentioned as mainly responsible for TVET in Myanmar. It is responsible for the development of technical education and training for skilled and semi-skilled workers as well as middle-level technicians⁴, and functions as one of five departments under the supervision of the Ministry of Science and Technology (MoST) that was set up in 1996. Among other things it is furthermore responsible for purchasing teaching aids and equipment as well as the training of teaching professionals for all technical and vocational educational institutions under the MoST such as Technological Universities, Computer Universities, Government Technical Colleges and Institutes, and Technical Training Schools (UNESCO-UNEVOC, 2012b; Si Thu, 2011, pp.158f.). Other technical and/or vocational training courses are provided by quite a number of other line ministries⁵, above all the MoI, but also such as the Ministry of Agriculture and Irrigation, Ministry of Hotels and Tourism, the Ministry for Boarder Affairs, or the Ministry of Education⁶ – a picture which displays that the government is the main provider of TVET in Myanmar. Additionally, 459 public training institutions as well as approximately 350 to 550 private organisations are involved TVET providers (OECD, 2014, p.122). This diversity, mainly on the governmental level, creates rather inefficient educational planning processes due to overlapping in the Ministries' responsibilities or double efforts spent as well as a lack of coordination among them and related TVET providers (ILO, 2014, p.120). The absence of a consistent national qualifications framework moreover compounds the lack of transparency (OECD, 2014, p.137). In conclusion, the government-led TVET model is too rigid and too inward looking which is why it is not able to sufficiently improve and meet the requirements of the emerging labour market (Panth, 2013, pp.200f.).

The main constraint arising in the TVET system bears upon the communication gap between TVET providers and the economy, which means that the capacities of public training providers, that are under-utilised, are not matching the potential demand for TVET (ILO, 2014; OECD, 2014, p.120). In Myanmar, about 45% of enterprises have hired apprentices, trainees or interns. That TVET can benefit from these forms of workplace learning has not yet been considered to the extent necessary (OECD, 2014, p.124). The International Labour Organisation (2014) provides evidence that, in line with the supply-driven TVET system for both public and private providers, training programmes and with them learning outcomes are barely oriented towards labour market needs since there is little or no cooperation between vocational schools and the labour market such as the industry. In that connection, also the mentoring and coaching mechanisms for practical training at the companies have essentially not been developed. To foster

⁴ It furthermore operates the two main programmes 'Developing Human Resource' and 'Research and Development'. For the previous, among other things, the DTVE is providing advanced teaching aids and laboratory equipment, up-to-date reference materials as well as machines and other facilities for the practical application of theoretical knowledge (UNEVOC Network, 2012).

⁵ The OECD (2014) mentions 17 line ministries involved in TVET while the ILO (2014) is referring to 14.

⁶ In 1998 the MoE established the National Centre for Human Resource Development (NCHRD) mainly to promote human resource development and offer more diverse possibilities of training programmes (TDA, 2012, p.1).

the linkage between labour market and the TVET sector as well as information exchange and dialogue of core issues in the TVET sector, the Employment and Skills Development Law was approved in 2013 (ILO, 2014, p.1).

The negative connotation of technical education and training as well as manual work is also to be counted among the prevailing challenges in Myanmar's TVET system. This perception may change with the improvement of TVET's quality (OECD, 2014, p.125). Expenditures for the TVET sector in Myanmar almost exclusively refer to the salaries of the teachers. Nevertheless, the low salary for teachers in Myanmar is a sign of the states limited resources and cannot represent an incentive at all, which together with the lack of teaching aids certainly is a reason for some vocational teacher's low motivation (ILO, 2014, p.52). Moreover, the development of curricula is hoped to include quality standards as well as a process of group discussions or workshops with authorities and responsible training institutions. Other than that, TVET remains almost entirely theory-based in Myanmar. The respective theory and practice components are not balanced, which means that lessons are provided rather theory-driven and classroom-oriented instead of competency-based and industry- or business-oriented. This is closely linked to a low teaching quality and the application of rather outdated teaching methods (ILO, 2014, p.120), which is precisely the main reason and motivation for compiling the present research work. Panth (2013, p.198) expresses the predicament of a lopsided quality by saying that graduates are under pressure because formal education pathways have failed at all levels to impart the skills demanded by the labour market. To compensate these competencies, such as communication, problem solving, critical thinking, team work, or analytical skills, seems to be unrealistic. The MoE operates a Comprehensive Education Sector Review (CESR) which is divided into three phases. Phase 1 has already approved that higher level thinking is not stimulated intensively because practise phases are just too rare and rote learning is the predominant learning method (MoE, 2013, p.271).

2 Workforce-Development in Myanmar

2.1 TVET Quality in Myanmar

The origins of the present paper lie in the conviction that "*[q]ualified and motivated teachers and instructors are key for effective learning and are at the heart of TVET quality*" (UNESCO, 2015a). The reason why quality in TVET deserves our increasing attention is trenchantly expressed by the fact that "*we must realise that workforce-development is one key-issue for the overall development of countries*" (Whaba, 2014). For this reason, occupational competence is taking over a main role in international debates and especially in the discussions dealing with technical and vocational education and training (TVET) (Rauner, 2010, p.86). Recently there is an employability mismatch in many countries reflected by underemployment or skills gaps which have been focused as a serious problem in debates of policy makers and researchers in the last couple of years (CEDEFOP, 2010). The International Labour Organisation (ILO) (2014, pp.7f.) proves that the shift between skills acquired in vocational education and skills needed for their future working environments as well as expected from the employers is a main challenge for Myanmar's TVET sector.

If the quality of TVET lies in the effectiveness of its teachers, TVET teacher training becomes vital for the overall success of vocational education and training systems (ILO, 2014, p.42; UNESCO, 2014b). Moreover, at the end of the day the outcomes to be achieved, such as occupational competence, rely heavily on the interaction between the teacher and the students, where pedagogical competencies become crucial (Lucas, Spencer, Claxton, 2012, p.21). Especially the didactic teaching methods, considered as means in vocational pedagogy⁷, have a direct impact on teaching and learning (Lucas, 2014, p.2).

With the objective of understanding how TVET teachers and instructors facilitate knowledge, this paper addresses the micro level of the TVET system namely the concrete learning and teaching situations. The micro level of human resources and learning environments includes most importantly teacher and instructor training, teaching methods and training materials and the relevance of curricula (ILO, 2010, pp.12f.). Since the influence of the other dimensions cannot be neglected, the results of this work are being embedded in both. On the one hand, the meso level is being considered by building bridges to prevailing institutional prerequisites of these learning and teaching situations. On the other hand, the macro level is being involved by providing core information on the Myanmar TVET sector and the elaboration on the question, if Myanmar's education system equips the teachers with sufficient qualified skills in order to impart appropriate application know-how to their students. The crucial point is however, that the TVET system in Myanmar faces the challenge of a remarkable lack of research in TVET in general and in specialist topics such as training efficiency (Si Thu, 2011, p.160). Therefore, only few reliable sources on this topic are available, which underlines the relevance of this particular research.

In response to the immediate demand of skilled workers and therefore the need of more training and education for TVET teachers, Myanmar is currently aiming to set up corresponding training institutions (UNESCO-UNEVOC, 2014a). However, until now, too little attention has been drawn to the profession of TVET teachers in the examined country because "*[i]n Myanmar, teaching is not perceived as an attractive career option*" (OECD, 2014, p.127). As a result, teaching competency is not particularly recognised. Despite of that, recently hopes for the better recognition of the teachers' role are rising (MoE, 2013, p.32). Furthermore, at the ITCs or other vocational institutions just like in the majority of other Asian countries, too, the training of teaching skills has not been valued as much as the training for mechanical and technical skills. Therefore, in the 1980s the ADB (1988, p.141) has already criticised the procedure to recruit highly qualified technical experts from the industry in order to hire them as instructors without providing any preparation on teaching methods. The accordingly low capacity of qualified teaching personnel constitutes the country's current situation: TVET trainers are generally little experienced in industry as well as in learner-centred teaching methods and there are only few of them who received sufficient education and training. Those mostly choose to work abroad where employment conditions and salaries are per se more adequate (ILO, 2014, p.121).

2.2 Measures Implemented to Improve the Situation

Up till now most of the developing countries have very few capacities to train TVET teaching staff, which is why the provision of teacher preparation may be kept to one institution as pilot and

⁷ "*[V]ocational pedagogy is the sum total of the many decisions which vocational teachers take as they teach, adjusting their approaches to meet the needs of learners and to match the context in which they find themselves*" (Lucas, 2014, p.2).

foundation for a further extension throughout the country (UNESCO, 1973, p.50). This pilot is planned to be implemented at the Technical Promotion Training Centre in Baelin, which was established in 2011 with the mandate to enhance teaching efficiency and promote the technical skills of teachers under the MoST (DTVE, 2012). Until now its mandate is among other things to enhance teaching efficiency and promote the technical skills of teachers under the MoST (DTVE, 2012). However, as it appears to be the only government owned teacher training institution in Myanmar, there is a drastic need for an institutionalised teacher training centre (Basu, 2011, p.31). In addition, it does not reach out to teachers from other ministries such as the Ministry of Industry (MoI) nor does it include pedagogical trainings (Lochow, 2014). Consequently, in future the pilot project shall respond to the immediate training need but also provide a long-term solution as part of the project ‘Strengthening the vocational training System in Myanmar’, initiated by the German Agency for International Development Cooperation (GIZ)⁸. In detail, a selected Technical Training Centre shall become a teacher and management training centre with the main purpose to develop capacities of both, TVET teachers and instructors plus management staff of TVET institutions (MoI & GIZ, 2013, p.14). One first step towards a pedagogical teacher training has been accomplished by the GIZ. In the format of an in-service training the German organisation delivered a short-term solution by implementing ‘Competency Development in Teaching and Learning Methods in TVET’ for TVET teaching staff under the Ministry of Industry (MoI) (GIZ, 2015).

3 TVET Teacher Training and Vocational Pedagogy

3.1 The Importance of Vocational Pedagogy

As known, the debate on vocational pedagogy is a global issue, which concerns the TVET strategies in all countries and dates back to the early 1960s, thus to the time when a number of countries began to create TVET systems (UNESCO-UNEVOC, 2014b, p.4; UNESCO, 1973, p.49). To this end, putting emphasis on the important role of didactical conceptions in TVET is not only a recent German or European trend.

Closely linked to the idea of vocational pedagogy is the assumption that the application of action-oriented teaching and learning methods as didactic approach will, especially in TVET, contribute to a higher quality and to a change towards promoting young people’s relevant skills for the world of work (Höpfner, 2009, p.1709). This stands in contrast to the prevailing challenge that *“Increasing scholastic learning in VET has impaired the possibilities for students to take a walk in precisely the learning landscape where they are supposed to function professionally after education”* (Nielsen, 2010, p.264).

In the UNESCO recommendation on TVE from 1962 it was already trenchantly expressed that *“technical and vocational education should do more than train an individual for a given occupation by providing the persons concerned with necessary skills and theoretical knowledge”* (McGrath, 2014, p.5). What UNESCO was trying to suggest is that besides offering basic

⁸ The Deutsche German Agency for International Development Cooperation (Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH) supports the federal government in the achievement related to development policy and fosters the international collaboration for a sustainable development of partner countries (BMZ, 2015).

education it is also of importance to foster the development of personalities as well as soft skills such as self-determined and critical thinking, understanding and judgement or self-expression and the capacity to adapt to changing environments (ibid). It has been demonstrated that this idea of TVET remains acknowledged to the present, for example in the 'Revision of the Revised Recommendation Concerning Technical and Vocational Education (2001)' (UNESCO, 2015c).

3.2 Linking TVET Teacher Training and Vocational Pedagogy

The general consensus is that also TVET teachers have to hold a relatively high level of general education, technical qualification, and a reasonable pedagogical knowledge (UNESCO, 1973, pp.113f.; ILO, 2010, pp.19f.). One appropriate instrument to achieve this goal – and this is a recently emerging challenge in developing countries – is therefore to train vocational teachers not only in technical fields but additionally in general pedagogy and subject-related didactics. Shyamal Majumdar, the Head of UNESCO-UNEVOC International Centre, is convinced that good quality education mainly relies on qualified teachers, which “*is particularly evident in technical and vocational education and training, where TVET teachers have a distinctive role to play in improving the quality of education*” (UNESCO-UNEVOC, 2014b, p.4). These measurements could accordingly pave the way for a higher quality in education and especially refers to TVET, which deserves more consideration as contribution in the sense of the Education for All (EFA) initiative⁹.

TVET teacher preparation can only be considered complete, if practice teaching is included under close supervision and guidance, so that participants can learn to act as self-confident and effective teachers with the help of strong communication skills in an oral, written, and graphical manner as well as through giving the subject the largest sense (UNESCO, 1973, pp.186f.). Regarding the organisation in TVET teacher training programmes this may pose true difficulties, above all in developing countries (UNESCO, 1973, p.187; ADB, 1988, p.306). Nowadays we know that the concepts of action-oriented learning and self-regulated learning are becoming increasingly relevant for TVET, especially in the context of the development and promotion of key competencies. The OECD Skills Strategy (2012) for instance reveals three main areas for action which are developing relevant skills, activating them and putting them to effective use. On this account, the foundation of vocational skills training is the combination of theory and practice, and of learning and working which is guided by imparting structured knowledge and competence in their proper application context (Heusinger, 2006, p.223). Bünning (2010, p.72) demonstrates that for example experimental learning phases evidently support both groups of learners, those with higher and those with lower individual capacity. This result represents a convincing base for further research in this field as well as the further development and application of action-oriented teaching methods in teaching and learning compositions.

In many Asian developing countries the ‘train the trainers’ model is already perceived as one approach for reducing the skills mismatches between training and industry needs (Martinez-Fernandez & Choi, 2013, p.156). Corresponding training programmes in developing countries ought to be tailored to the economic reality and related needs (UNESCO, 2012, p.4; Quanquan, 2006, p.179). Most importantly, the teaching personnel have a great responsibility for the culture,

⁹ EFA is a global movement originally concluded during the World Education Forum in 2000 in Dakar to foster the provision of access to quality basic education for all (UNESCO, 2015b). Meanwhile it is expected that in cooperation with the TVET sector, EFA can even achieve a greater impact (UNESCO, 2012, p.2).

personal development, and technical knowledge of the students, in order to enable them to cope with the challenges of the advancing technological age (UNESCO, 1973, p.163; Heusinger, 2006, p.226). Vocational pedagogy is a fundamental part of studies to become a teacher – it must be tied together with technical courses, so that future teachers learn to effectively communicate their technical knowledge and skills (ADB, 1988, p.306). Training courses, such as in psychology should prepare future teachers for the kinds of students they will be dealing with, as well as the students’ interests and problems, and how they can be effectively taught. Furthermore, theory teachers must learn how to link theoretical aspects closely to the practise (UNESCO, 1973, p.185). There is actually a bachelor of education programme in Myanmar which focuses on such as teaching methodologies, pedagogy and psychology (UNESCO-IBE, 2011, pp.18-27). However, it is not specialised on TVET teachers but only on primary and lower secondary education.

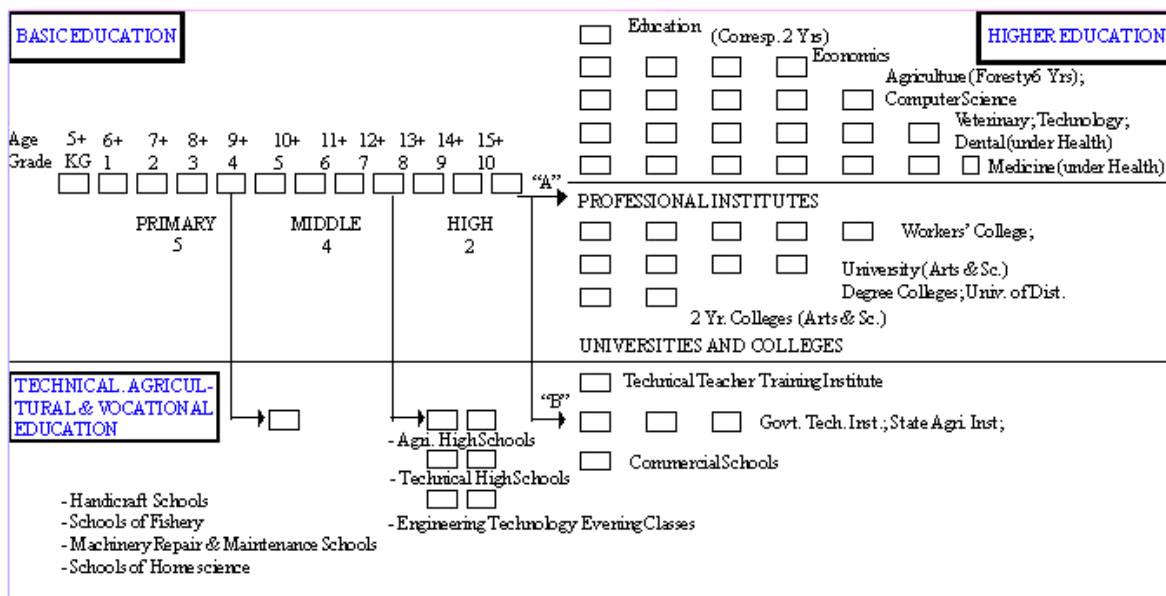
4 Results of a Qualitative Field Research in Myanmar

4.1 Career Pathways of TVET Teachers in Myanmar

Through a structured field research the above mentioned findings could be complemented. The subsequently summarised facts resulted from the analysis of interviews with six TVET teachers and two teacher trainers as well as of the observation of four different class implementations at different ITCs.

Compulsory basic education in Myanmar starts with one year pre-primary education and lasts until grade eight, while a bachelor takes four years of study. As illustrated in figure 2, after completing middle school there are diverse ways how to continue higher education.

Figure 2: Myanmar Basic and Higher Education System



(Source: UNESCO-UNEVOC, 2014a)

Among these paths no structured way of becoming a TVET teacher exists. Therefore, vocational teaching staffs apparently have heterogeneous backgrounds and profiles – a challenge which is being demonstrated by the following examples. Some of the interviewed TVET teachers from ITCs, which are located throughout the country, chose the direct way and went to the GTI (Governmental Technical Institute) for three years or to the AGTI (Association Government Technical Institute). The graduates from this public vocational school run by the MoI will most probably be working as instructors at aligned vocational schools. On the other hand, the graduation as bachelor of engineering from technical universities in technical fields such as electrical or mechanical engineering was the minimum requirement to become a theory teacher. One interview showed that in rather rare cases a prior bachelor degree in mechanical engineering, combined with work experience at a ministry could lead to becoming a teacher ‘by chance’. In this case, the teacher has been working for about two years as day labourer in two different ministries, lastly at the MoI. At first, she was responsible for calculating the combination of building material and later she has been involved in the field of metal work. Following her placement at the MoI, she was appointed to start working as a theory teacher at an ITC. As visible from this example the challenge of various backgrounds applies to the working experience of TVET teaching personnel, too. While theory teachers have basically never done practical work, most of the instructors gained working experiences from the industrial sector. The latter mentioned is actually crucial for their role as workshop or practice teachers, since UNESCO (1973, p.113) once denoted this practical knowledge as indispensable for them. Some of them have been working for seven up to fifteen years in the heavy industry before they came to a vocational institution where they were thrown in at the deep end to make their first teaching experiences. Neither a pre-service training nor a structured in-service training had been delivered to them ever since.

A different interviewed vocational teacher took vocational education courses in electrical engineering for three years, provided by a German vocational trainer and did then a degree in psychology by distance learning. Another instructor graduated from school with her A levels specialised on natural sciences, which enabled her to study mathematics at university. Only then, she was accepted at the GTI and took another vocational training in electrical engineering with emphasis on energy engineering for three years. Another way to become a teacher is to go to college for five years and graduate as bachelor in mechanical engineering. Despite of the non-standardised way of becoming a vocational teaching staff member it can be generalised that instructors are required to absolve technical vocational training at a vocational institution run by the state whereas theory teachers need to have at least a bachelor degree, preferably in a technical field. The distinction of those two separate staff positions is deeply rooted in the Myanmar technical education system. However, in the end there is not made a real distinction in their occupational tasks since the realisation of theory lessons has not necessarily to be taken over by a ‘theory teacher’ and in a similar way practical lessons are not only given by the instructors. Another crux of matter in this connection emerges from the fact that TVET teachers and instructors are not always given an appropriate position as the example of one interview participant shows. He obtained a diploma in electronic communication, but is assigned now to teach CNC machinist courses, which clearly results in a training gap of technical as well as specified teaching methods knowledge.

4.2 Pedagogical Qualifications TVET Teaching Staff

Generally speaking, a TVET teacher in Myanmar is accordingly not well prepared for the tasks of a teacher. The ILO (2010, p.23) approves that “[p]re-service training for teachers and trainers in TVET remains the exception” in transition and developing countries and thus, none of the instructors or teachers in Myanmar happened to have participated in any pedagogical training beforehand which is why a pedagogical background is de facto missing. On account of this, actual critique refers to the unstandardised recruiting procedure which implies, that teachers and instructors were not involved in the decision whether to become a teacher. Instead, the National Centre for Human Resource Development (NCHRD) normally appoints TVET teachers, while in principle the entrants have to fulfil certain requirements. Essentially, vocational institutions have little influence on that (Lochow, Ide & Moe, 2014). The interviewees approve that the MoI basically designates people, mostly from their own industrial branches or from the MoI itself, to work at the ministry owned ITCs albeit there is no special teacher training provided. The teaching staff is aware of this challenge, explaining that they are lacking in the skills to be able to teach their students in a logical way. This manner of recruitment also creates a key problem for the quality gap in TVET: the teachers certainly have no intrinsic motivation. The OECD (2014, p.125) pleads for the promotion of more flexible recruitment procedures for TVET institutions, which would support the integration of teaching professionals with the needed teaching as well as industry skills. One possible approach could be to establish a two-year teacher training course as alternative entry possibility for university graduates from other disciplines (ibid, p.127).

In the mid-1970s, already some of the teachers from ITC Sinda (who are now retired) were sent to Germany for a two-years-training programme, where they had learnt intensively about teaching methods and their application. Later on, these teachers and instructors functioned as multipliers, so that the current elder generation of teaching personnel at ITC Sinda still had learned from them. The trained teachers guided them during the lessons and developed syllabi, which are still in use. If new teachers or instructors start their work at ITC Sinda they normally are mentored by more experienced teachers, too. Newly hired teaching staff usually seek advice from teachers who have many years of experience, albeit they mainly acquire their knowledge from specialist books available at their institution or even, if certain things are still unclear, from technical books they buy at the market themselves. This suggests that, with regard to the teacher’s pedagogical qualifications, methodological handbooks would support them essentially to apply student-centred methods. Yet, those do obviously not exist in the school or on the market.

Systematic pedagogical approaches do generally not exist in Myanmar’s vocational schools. Therefore, during the pedagogical training provided in Germany in 2014 it was the first time for most of the teaching staff when they have heard and learned about methods dealing with how to teach technical knowledge. Their methodological mind-set did up to now not exceed the demonstration of examples, calculation tasks or tools and the application of action-oriented teaching methods is significantly different from their rather traditional teaching habits. According to the statements of the TVET teachers and instructors, the pedagogical training they have received, has encountered them for the first time with didactics and pedagogy and enabled them for the very first time to identify with the role as a teacher.

4.3 Practiced Teaching Approaches

Recently, theoretical and practical classes and respective teaching and learning methods are not structured albeit the teaching staff hardly tries to understand and apply the didactic methods conveyed in the pedagogical training. One interview statement revealed that due to the unstructured way of teaching, the students would only more or less profoundly understand the issue.

The observations verify the assumptions made in the forefront: no systematic didactic approaches were visible and thus teacher-centred methods dominate the classroom which results in a low estimated student action ratio of 10%. The students are normally only being activated on a very low level although in practical lessons the involvement is higher. In theory lessons, the activation of the students is limited to repeating after the teacher and drafting notes or giving independent answers to the teacher's question or engaging in groups or pairs to independently solve paper based exercises. Such as copying the teacher's writing on the blackboard takes a considerable amount of time (GIZ, 2014, p.6). Prompting and repeating the answer as well as demonstrating and imitating are customary methods in class. Notably, there is mostly only one direction of communication because the students are disciplined and used to an authoritarian teaching style. Therefore, they do not dare to interrupt the teacher, ask questions or to cause embarrassment to the teacher. Despite the critics of teacher-centred teaching, Mussotter (2010, p.85) appeals to the reader to consider the teacher's direct position as role model, especially the task stimulating enthusiasm and excitement about a particular topic.

Group work is popular among the teachers and seems to be the only instrument they know to activate their students. They perceive group work as approach where they can influence by arranging duties and pre-formulating assessment criteria. The way of working in groups can be denoted as unstructured, laissez faire and trial-and-error-learning, where a creative and independent learning approach is clearly missing. The fact that almost all exercises are organised in groups of four to five students due to the lack of learning material has been widely criticised by the teaching staff, since it causes that students who do not want to participate were often let go by the board.

One possible reason for this lack of methods could be (besides missing training) that the preparation is very time-intensive (ibid, 2010, p.85). And it is true - teachers spent little time on preparation or discussion before and after entering the classroom. If they are not teaching ad lib, the teachers and instructors mostly convey the lesson input according to the technical books or manuals that were compiled by other teachers of many years' standing. Crucially, by reflecting on the lesson, the teacher will possibly be better in tune with the students' needs and demands, which is already one tiny step towards class preparation. Sometimes less experienced teachers consult their colleagues at that point, who give some good advice. Creating a lesson plan prior to the commencement of a class would generally be accepted as good-practice. At vocational schools in Myanmar this kind of class preparation is uncommon. In terms of teaching methods, teachers and instructors were hitherto often left to their own discretion. In conclusion, the teaching habits at vocational schools in Myanmar are not following a competency-based approach and the teachers evidently depend on their own imagination when it comes to didactic methods.

The result of the mentioned pedagogical training in 2014 is that teachers and instructors from ITC Sinda tend to challenge their students more. In contrast to former times where the teacher's role

was to guide, explain and instruct, now the teacher and his or her students try to elaborate on topics together. Only what is urgently needed to procure like that on a regular, daily base are raw materials such as safety equipment, teaching aids, machines and continuous supply such as paper. However, the observations have clearly shown, that it is hard for the instructors and teachers to put action-oriented teaching into practise.

Mussotter (2010, p.85) argues that in this case direct theory input as introduction is the best way to access the topic as it would facilitate the clarification of thematic priorities as well as the teacher could respond to individual problems of understanding. Action-orientation therefore has to be grounded on a theoretical level if occupational actions can be practiced at school (ibid, p.83). Similarly Gerds & Zhao (2006, p.128) stress that relating theoretical knowledge to relevant practical know-how is a crucial task of TVET teachers because this is conducive for the understanding of the students of how and, most importantly, why a vocational task has to be carried out in a certain way. Such a well-balanced ratio of theory and practise is not being implemented at vocational schools since there are mostly pure theory lessons complemented by practise lessons given in workshops which also integrate a theory input. Real working conditions are rarely stimulated through the training of such operational tasks (installations processes etc.) as well as neither in theory nor in practice lessons a project-based training is taking place. A more student-centred teaching style during theory lessons would activate students and foster their learning by means of a competency-based approach.

4.4 Influencing Factors which Limit the Effectiveness of the TVET teachers' in their Role as Multipliers

A first very simple answer to this question lies in the comparatively high number of students per class, which makes it difficult for the teachers to apply student-centred teaching methods. However, further research has brought forth a couple of more complex reasons.

In the interviews it has been found out that other duties and responsibilities of the teaching staff outside the classrooms hinder teachers and instructors from concentrating on their actual teaching role, which means also that they cannot devote a sufficient amount of time to the preparation of student-centred teaching and learning methods. A statistic published by the ILO (2009), state an average working week of 35 hours for TVET teachers in private institutions in Myanmar. However, the workload of instructors as well as the teachers is in fact higher since their responsibilities exceed the 40 teaching hours per week. The staff must also take over administrative, maintenance and security task. According to their individual expertise they are also in charge of repair works and maintenance of any kind (e.g. for water pumps, machines, electronic devices, on all premises). This occasionally disrupts the daily classes because the teachers have to be available at any time to fix urgent damages. Besides it should raise concerns that, as the ITCs are boarding schools, the teachers have to look after the students even at night. Notably, other countries in Asia, Africa and Latin America TVET teachers work beyond the required 40 hours of presence (ILO, 2010, p.43). Improving the working conditions for TVET teachers and enhancing a higher value of their profession should therefore belong to the first steps in the framework of promoting TVET systems in developing countries.

In developing countries, teaching and training materials do rarely support specific skills development: *“Too often teaching and training materials are of little relevance for what the*

students have to face in the world of work after they leave their “refuge” of (mostly) government-run technical vocational schools and institutions” (ibid, p.13). This overall finding perfectly applies to the ITCs in Myanmar as subsequently elaborated. What can be drawn from the observations is, that the blackboard or whiteboard is a central teaching aid. The didactical value of the writings and drawings on the blackboard should therefore not be underestimated because it is the central teaching and learning method at the moment. In some classes the instructors or teachers distribute handouts, but mostly the students are drafting their own notes. Modern equipment such as a beamer or overhead projector is not available yet, but even more challenging for the teachers is that there are no books for the students. For this reason, it became quite important for the teachers to independently create own teaching materials. Accordingly, they compile teaching handbooks including worksheets for each trade, for which they use hand copies from technical books and their own technical knowledge. In the framework of development aid Germany provided textbooks in the 1970s, which are still in use. Many of the used teaching equipment such as machines have become obsolete in the course of the years and do not function anymore. The quantity and quality of teaching material and aids hence represent a major problem in Myanmar. There is a proven shortage of resources in TVET institutions, such as teaching materials and aids (overhead projectors, pin boards etc.), training laboratories and equipment as well as computers and safety equipment. Moreover, the internet connection in the majority of the ITCs is very limited. The improvement and development of applicable modern and relevant learning and teaching materials at TVET institutions deserves special attention. To ensure a higher quality and efficiency of education and training those should be created in close linkage to the NSSA specific TVET regulatory framework. The ILO (2010, p.13) emphasises the importance of abolishing outdated and irrelevant equipment and procure material relatively to the modernised curriculum contents, otherwise the gap between training and employment needs would keep on widening.

The limited time frame in which theory and practice lessons have to be delivered counts among the inhibitory factors as well. Earlier, each vocational training course at ITCs took two years but meanwhile the curriculum comprises only one year (level 1 and level 2) albeit the theory input is said to be still the same. The narrow time frame has always been a difficulty and the reason why it is not possible to apply all of the learned methods immediately. A change back to a course duration of two years is recently envisaged so the government has already started to initiate a curriculum review and upgrade by the National Skills Standard Authority (NSSA).

An aspect that additionally eats into the time frame at the beginning of each batch is that all students are being instructed how to march. This is one example of hierarchical barriers stemming from former military structures. The interviewees gave several examples for the existence of hierarchical barriers and that these limit their scope of action as well as sometimes the motivation of the teachers or students. Most of the decisions concerning teaching are not taken by the teaching staff but by the school principle. It is him who has to allow the application of new teaching methodologies. Until now, the curricula have been developed by officials that *“are generally not trained [...] not versed in the psychology of learning and not always aware of the critical importance of teachers formally developing both technical and pedagogical competence in equal measure”* (Vardigans, 2015). Besides, they are not provided with information on the labour market and its demands, which is criticised for example by the ILO (2010, p.13) as common procedure in developing countries. Even the duration of the technical vocational training courses is stipulated from above. Both, private enterprises and training institutions are not involved in the definition of subjects to be taught (OECD, 2014, p.122). The

truth is that, even if one of the teachers would be familiar with didactic methods directed on action-orientation, they would not be allowed to implement these in class without the direct order of the authorities. In other words, these methods have to be introduced by the ministries. In contrast to the recently government controlled TVET sector in Myanmar it is widely acknowledged that a decentralisation of control could be conducive for the future development of the TVET sector in a country (Si Thu, 2011, p.161). Panth (2013, p.204) approves that many TVET programmes in the Asia-Pacific region are under the rigid control of the government which is harmful to the flexibility and fiscal as well as administrative autonomy of training providers and furthermore results in low relevance and inefficiency as well as poor placement rates. The changing nature of the world of work favours the requirement of relevant courses in collaboration with employers. Another critical hierarchical implication is given in respect to the recruitment process, which functions by appointing certain people to the position of a teacher, who have no teaching experience. This procedure may logically decrease the teacher's motivation in the same way as because of the lacking support of authorities, for example when it comes to salaries or the provision of relevant teaching material. All of this leads finally to the conclusion that the teachers truly hope for flattened hierarchies in the future.

Vocational schools in Myanmar do not maintain partnerships with firms belonging to the private sector, which makes it difficult to find internships or further job opportunities for the students and graduates. The lack of private sector cooperation in the entire TVET sector is also confirmed by officials from MoE, MoI, MoST and MoLES (ILO, 2014, pp.74, 78). The private enterprises are either situated far away from Sinda or not eager or willing to collaborate because they do not see the value or benefit of it. The poor involvement of the enterprise-based training may lay in the neglect of incentives for such, argues Panth (2013, pp.200f.). The lack of participation of industry stakeholders often leads to irrelevant contents which are not adapted to the industry or public sector needs (Si Thu, 2011, p.160). The 'occupational concept' is fairly complicated for developing countries – a challenge that also applies for Myanmar (ibid). The ILO (2010, p.16) considers it as decisive to enable TVET schools to build bridges to first of all local enterprises and to let the teachers' engage with establishing these partnerships and TVET networks. The close contact to a number of companies, factories or workshops does not only support the development of career structures, it is also valuable to the teachers because they can collect ideas and use information and knowledge about such as operations processes as examples for particular cases in their lessons (ibid). Yet for the time being, the teaching staff considers liaising with businesses as a great concern (Roth, 2014).

There is no simple way for the teachers to keep themselves updated about such as teaching methods or the latest machines. Although they are very interested in learning about modernisations in the industry, they have poor access to all needed particular information since those can only be found in English on the internet. However, their English level is low and the internet connection in most of the ITCs is very limited. Commissioning necessary books often turns out to be unsuccessful.

4.5 Suggestions from TVET Teachers to Improve the Situation

First of all, the teachers hope to increase the success rate of the students by motivating them through competency-based teaching. The modernization of the teaching environment (equipment

such as machines, workshops, classrooms etc.) and the purchase of necessary teaching material is finally what the interviewed TVET teaching staff hopes for the most.

There is a consensus that TVET teachers must be consecutively educated and trained at diverse qualification levels. In fact, the possibility for teachers to upskill in accordance with the demands of vocational institutions as well as individual intentions should therefore always be highly valued (Gerds & Zhao, 2006, pp.129f.). Therefore, the teachers and instructors in general wish to receive further trainings. In detail, this refers on the one side to training in teaching methods, primarily for level 1, and a complete teaching setting for the other levels. On the other side, subject-specific, technical trainings are highly demanded. This specifically refers to trainings in mechatronic (level 3 to 4) in order to learn more about the functioning of modern machines. Otherwise it would not make sense to purchase new machines. The teachers also wish to receive more practical training for the lessons input for level 1 and 2 as well as a teacher training in new technologies. The ILO (2014, p.77) confirms that such comprising practices are not officially in place in Myanmar.

However, the crux is that TVET teaching personnel has a priori no possibility to change the working processes and work environment in TVET providers and therefore it is of utmost importance to include the authorities (school principle, MoI or undersecretary) who have to embark on the course of action, too. The whole change process can then only be successful if the teachers and instructors could go on developing and testing new lesson plans. Additionally, the entire concept including the curriculum of the vocational trainings will have to be revised step by step so that the training duration will possibly be expanded to two years instead of one year. Regarding pedagogical teaching skills, a main aspect which is worth to take on is that 'how' students learn is as important as 'what' they learn. The attention of Myanmar policy makers has already been drawn to the finding that teaching content alone does not achieve the required impact in general education and certainly neither in TVET. Therefore, education reforms involving curricula review processes and the introduction of new teaching methods are slowly making their way forward (OECD, 2014, p.123f.). Addressed within the discussion of emerging tendencies in TVET teacher training for the 21th century, Basu (2011, p.31) underpins the shift from traditional teacher training programmes to a multi-dimensional approach. Such as lifelong learning, the integration of industry cooperation, institutionalised teacher training or the acquisition of multi-lingual and effective communication skills as well as self-employment and entrepreneurial skills are regarded as belonging to the main trend developing countries are facing in TVET teacher training (ibid).

The willingness and mental ability of the teachers and instructors to apply didactical methods is hence clearly present. However, those both prerequisites are being blocked mainly through political and hierarchical circumstances and the lack of teaching resources. Their scope of action is thus limited notably. Meanwhile the increasing sophistication of TVET systems internationally continues.

5 Conclusion

5.1 Problem at a Glance

When considering all the mentioned results from the foregoing analysis and descriptions the following emerging conclusions represent a comprehensive problem scenario with regard to TVET teacher training.

- 1) There is a low awareness for the relevance of TVET in general and with respect to its potential to develop a country's skilled and semi-skilled workers. In comparison to university degrees, graduating from training courses at vocational institutions is not perceived as a valuable career option.
- 2) Regarding careers, there is no appropriate pathway or development opportunity for the TVET teaching personnel since no pre-service training is available and university courses focusing on vocational teacher training do not exist. In addition, in-service training is mostly not in place either or only provided as technical training to few selected teachers.
- 3) This is creating difficulties for TVET teachers and leads to the conclusion that they have relatively heterogeneous qualification backgrounds in mostly technical fields which indicates a lack of pedagogical and didactical competencies.
- 4) Consequently, the limited pedagogical knowledge and skills of TVET teaching staff is used unsystematically. Didactics in theory and practise are unknown among the instructors and teachers. This is exactly the point where teacher training must start.
- 5) However, pedagogical skills are not considered relevant in the eyes of those who 'recruit' vocational teacher and instructors. Unexpectedly, TVET institutions are not quite involved in the opaque and unstandardised recruiting process. Recruitment means in these cases withdrawing staff from the industry (to become instructors) or appointing young graduates (to become a theory teacher).
- 6) It evidently shows that hierarchical barriers are high meanwhile the motivation and external support of the teaching personnel are rather low. This implies that teachers are not being involved in decisions and the necessary sphere of influence is not being attributed to them.

5.3 Final Conclusion

At the time being, Myanmar has already taken the opportunity to jump aboard the departing bandwagon of strengthening and upgrading TVET teacher education and so the vision for helping Myanmar achieving a transition in its TVET sector is bright. Although, there are evidently critical challenges lying ahead, Myanmar is not the only country where the "*serious consideration of pedagogy is largely missing in vocational education*" (Lucas, Spencer & Claxton, 2012, p.13).

In the nearer future, corresponding debates should become more detailed and take into consideration whether to profit from the experiences and proposals from international TVET stakeholders on the implementation of standards for the development of a short-term and long-term solution. These could be in the form of a TVET university degree to establish possibilities for vocational teaching staff regarding their initial and consistent development. Anyhow, it will have to incorporate vocational didactics and pedagogy as well as subject specific applied didactics in order to enable TVET teaching staff to efficiently distribute their technical

knowledge. More generally speaking, from the research emerge following recommendations, which are tailored to the Myanmar case but may be considered as orientation also for other developing countries:

- Strengthening the quality in TVET
- Designing an appropriate career path for TVET teachers
- Developing and implementing Appropriate TVET teacher education
- Incorporating vocational pedagogy for the development of transferable skills
- Involving TVET teaching staff and institutions in the change process
- Establishing public private partnerships in the TVET sector

As visible from the present findings, an enormous step towards the proper application of teaching methods still needs to be procured and corresponding institutional and staff resources still have to be created. This leads to open questions referring to the education of the trainers in TVET. As a consequence, the finalisation of this research work has opened up a new chapter in a book which has yet to be written. Notably, the individual efforts spent on the micro and meso level (by teachers, instructors, principles and development advisors) together with the support on the macro level (from the bilateral development cooperation with GIZ and other donors in Myanmar plus the expected improvements emerging from the ongoing political transformation processes) can lead to an integral quality improvement of teaching and learning in TVET.

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Biographies

Prof. Dr. Frank Bünning, born in 1969, graduated from the University of Dresden/Department of Vocational Education in 1996 with a diploma degree in vocational education and training (subjects: Construction and English), where he subsequently absolved his PhD with honors. While he has been operating as professor and managing director at the University of Kassel from 2009 to 2012, Frank Bünning was appointed as UNESCO-UNEVOC Senior Research Associate in 2010, which is surely important to mention as a further cornerstone in his career progression. Since 2012 he is employed as professor and chair in the field of technical vocational education and its didactics at the Otto-von-Guericke-University Magdeburg, where he was promoted to professor four years before. Bünning has also been involved in development cooperation since 2002, amongst others as short-term expert for the German Agency for International Development Cooperation (GIZ) and TVET related projects abroad.

M.Sc./M.A. Ulrike Schmidt was born in 1989 and has recently graduated from Otto-von-Guericke-University Magdeburg in International Vocational Education. Previously she made contributions to “Harnessing the Potential of ICTs for Literacy Teaching and Learning”, published by the UNESCO Institute for Lifelong Learning. Although her career path is only at an early stage she is already engaged in TVET research, especially concerning developing countries and has carried out investigations on the case of Myanmar in her master’s thesis. Her involvement in development cooperation as intern and junior short-term expert for the German Agency for International Development Cooperation (GIZ) is referring to the field of international issues and trends in TVET.