



The Bologna Declaration and Emerging Models of TVET Teacher Training in Germany

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Preface

As a follow up to the UNESCO-UNEVOC supported conferences in 2004 and 2005, this publication serves as a useful addition to the UNESCO-UNEVOC series on TVET teacher training. While describing emerging models for TVET teacher training in Germany the writers pose searching questions about the impact of the new programmes on the German TVET sector against the backdrop of the Bologna Process.

The impact of the Bologna Process on higher education in Europe can be seen in many aspects of University provision, not least in the area of Initial Teacher Training for Vocational Education. This sector faces particular challenges given its links with employment and industry. As European universities near the deadline for the achievement of the requirements set out in the Bologna Process, a new body of research is beginning to reveal emerging trends and new challenges created by the recent changes to programmes and processes both within countries and across European borders. Such research is already serving as an important touchstone for policy makers and curriculum developers in monitoring the ongoing success of the development of a Higher Education Area as recommended by the Bologna Process.

This publication covers the implications of the Bologna Process on TVET teacher training in Germany while considering the following areas in detail:

- o three identified models of TVET teacher training,
- o the advantages and disadvantages of these models,
- o opportunities offered by the new models
- o transfer between programmes,
- o shorter study periods,
- o enhancement of practical training,
- o internationalisation of the degree programmes

The structural realignment of degree systems to enable European convergence is seen to have created greater diversity within the (German) TVET system than was previously the case. This diversity has given rise to complexities which may serve as a new discourse for sustainable development in TVET not only against the backdrop of

the Bologna Process but for developments on a wider international scale. Lessons to be learned from case studies such as those described in this publication can serve as an impetus for further methodological analysis, policy and curriculum development.

UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training, in close cooperation with the Chinese National Commission for UNESCO and the Chinese Ministry of Education organised an international meeting in Hangzhou, China (from 8-10 November 2004) to develop a Master Standard Framework Curriculum for TVET teacher education. Sixty-eight experts from twenty-five countries participated in the meeting, including broad representation from developing countries. The meeting led to the general acceptance of Master Standard Framework Curriculum for TVET teacher education (see Annex II). The importance of the modernisation of TVET teacher education is explained in Annex I.

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Abstract

The implementation of the Bologna Declaration (1999) has resulted in major changes to degree structures in Germany. The recommendation to adopt a two cycle system of degree awards (Bachelor's and Master's) within a given time frame represents a radical conceptual shift for curriculum designers and policy makers in German universities where the traditional degree system consists of one block of study leading to a Master's award. The process of this reform and its resultant consequences remain live issues in the university sector and can be observed as the focus for conference proceedings over the last six years. The reform has posed particular challenges to universities concerned with TVET Teacher Training, given the professional nature of this orientation. As the dust begins to settle on the landscape, a clearer picture of the newly established models for Bachelor's and Master's degrees can be observed. With four years of further development ahead, this paper outlines generic developments in the university sector in Germany and focuses on the newly emerging structures of Bachelor's and Master's programmes in the TVET Teacher Training sector. The paper considers the extent to which such developments have remained in keeping with the original intentions of the Bologna Declaration and the positive changes envisaged by the TVET Teacher Training sector. Some aspects of the reforms can be seen to offer new opportunities and advantages for students and employers, while others appear to suggest the opposite. The authors conclude that the resultant changes have created a multifaceted landscape for TVET Teacher Training, which requires a shared understanding of the new programmes by universities and employers alike, if the new degree models are to achieve their originally intended aims.

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The Bologna Declaration

The Bologna Declaration (1999) represents the commitment by twenty nine (now forty five) European countries to reform the structures of their higher education systems with a view to establishing greater transparency and ease of mobility within the European union, but equally, if not more importantly, the Bologna Declaration represents the intention to establish and develop a coherent system of higher education which would be recognised in the competitive international domain in terms of high quality educational provision (Bologna Declaration 1999). The timescale set for the implementation of the declaration was stringent, with a deadline set for 2010 for all signatory states. However, the Bologna Declaration is not legally binding, which is a key factor to be considered in the context of emerging structures and practices across Europe. The lack of a legal requirement to comply with the recommendations of the Bologna Process enables countries to implement reforms to a greater or lesser degree according to their individual commitment to the principles underpinning the Bologna Declaration.

The Bologna Declaration notes that a 'Europe of Knowledge' is an important factor for social and human growth. The importance of education and educational co-operation for the development of stable, peaceful and democratic societies is acknowledged as being paramount, it was also made clear that the central aim of creating an improved convergent system of higher education should be that of becoming an attractive and therefore marketable educational 'product' in the global arena.

The Bologna Declaration identifies key issues, which, if addressed, would contribute to improving compatibility and comparability among European higher education institutions. Six requirements were agreed and these have become the key measurable indicators for a common European Higher Education Area:

The six requirements are as follows:

1. The adoption of a system of easily comprehensible and comparable degrees, this was to be achieved through the implementation of the 'diploma supplement', a measure designed to provide graduates with a clear transcript including a description of the awarding institution, to aid employability and international competitiveness.
2. The adoption of a system essentially based on two main cycles, undergraduate and graduate. Access to the second cycle would require successful completion of

first-cycle studies, which would last a minimum of 3 years. The degree awarded after the first cycle should also be an entrance qualification to the European labour market. The second cycle should lead to the master's and/or a doctorate degree.

3. The establishment of a system of credits which would be transferable across Europe. This measure was suggested in order to promote student mobility. These credits, ECTS (European Credit Transfer System) should also be made available in further education contexts, provided they are recognised by a higher education institution.
4. The promotion of mobility. Particular emphasis was given to widening access to study and training opportunities for students. In addition, it was recommended that periods of time spent in a European context by teachers, researchers and administrators should be positively recognised.
5. The promotion of European co-operation in 'quality assurance' with a view to developing comparable criteria and methodologies.
6. The promotion of European dimensions in higher education, in particular with regard to curricular development, inter-institutional cooperation, mobility schemes and integrated programmes of study, training and research.

It was agreed that a follow up meeting in Prague in 2001 would enable representatives of signatory states and ministers to assess achievements to date, to consider the next steps and future priorities.

The Prague Summit 18–19 May 2001

The Prague Summit focussed on the importance of higher education for democratic values and the values of cultural and linguistic diversity, as well as diversity of higher education systems. In Prague the Ministers called upon existing organisations and networks such as Network of National Academic Recognition Information Centres (NARIC) and European Network of Information Centres (ENIC) to guarantee, at the institutional, national and European level, a fair and efficient process of recognition of awards. The Ministers noted that in many signatory countries the Bachelor's, Master's and comparable degree systems were already established, together with a credit system, guaranteeing the recognition of qualifications across Europe, thereby facilitating access to the European labour market. An additional consideration emerging from the Prague Communique was the development of the notion of 'quality assurance' in European higher education. The next meeting was to be held in September 2003 in Berlin.

The Berlin Conference 19–21 September 2003

The focus of this fourth meeting was to intensify the efforts to implement Bologna at the institutional, national and European level. In the preamble of the resultant Berlin Communiqué ('Realising the European Higher Education Area') the essential decisions of previous years were reaffirmed and positively evaluated. The Berlin Communiqué contained the goals of Bologna and Prague, but sharpened the focus by defining priorities for the next two years. These priorities included:

- quality assurance,
- the two-cycle system, and
- recognition of degrees and periods of studies.

This paper focuses on the second priority, considering firstly

- the implications of the two cycle system on the degree system in German universities in general, and secondly
- the potential implications of the two-cycle degree system on TVET Teacher Training in Germany.

The Implementation of the Bachelor's and Master's degrees in German Universities and Academic Institutions

The implementation of the Bachelor's and Master's degrees in German Higher Education institutions has had a groundswell of support from most German universities, but the restructuring of degree programmes has not been a straightforward reform, nor has it resulted in one transparent structure across the **Länder**. Those institutions showing commitment to the principles of Bologna have also adopted the ECTS system of credit transfer while simultaneously rewriting their curriculum offer to comply with the requirements of Bologna with regard to the European dimension of the curriculum.

Given the lack of legal status attached to the Bologna Process however, these structural reforms and curriculum changes have not been made mandatory and have developed according to the extent to which the different **Länder** have supported such reforms to date. In this respect the governance of the reforms reflects a decentralisation corresponding to the German federal structure. Figures derived

from data from the Winter Semester 2005–2006 (HRK 2005:11) reflect the approach taken by the different Länder to the Bologna Declaration. Berlin has decided that all degree programmes should move to the Bachelor's/Master's model, 64% of the degree programmes in Berlin are aligned to the Bachelor's and Master's degree structure while Sachsen has not shown such commitment to the new structures, only 18.6% of the degrees in **Sachsen** are currently organised in this way.

Despite the fact that most academic institutions have adopted the concept of a two-cycle degree system, approaches to restructuring have been diverse. Although most institutions have opted for a model whereby the Bachelor's degree takes a standard period of study of six semesters and the Master's degree requires four semesters of study, variations to this model are: seven for a Bachelor's and two for a Master's or seven for a Bachelor's and two for a Master's. These variations can be seen in **Baden-Württemberg**.

This diversity of structures is mirrored by similar variations in the pace of change. According to recent statistics referring to the Winter Semester 2005–6 (HRK 2005:11) 52.9% of programmes offered at Fachhochschule are Bachelor's or Master's while only 29.5% of degree programmes offered at universities follow the new structures, thus indicating the increased readiness of Fachhochschule to engage with these significant changes, compared with the universities which have been seemingly slower to take up the challenge of change.

Against the backdrop of such fragmented developments the new degrees have been differently received by various stakeholders. In a recent study, Alesi, Bürger, Kehm, and Teichler (2005 4.4.4) identify significant levels of scepticism expressed by students, employers and teachers alike. The scepticism directed at the new degree structures can be assumed to be based on a lack of clarity about how the new degree structures map against the former structures. Consequently there exists a lack of confidence in the quality of the resultant standard of the emerging graduates. Anecdotal evidence suggests that this is particularly evident in the technical sector, for example in engineering, where traditional German qualifications are still held in the highest esteem by employers (Schmoll 2004). This potential conflict is heightened by the fact that the new structures are often perceived as an 'import' from the British education system, where degree programmes in technical areas have not enjoyed such a tradition of quality or prestige.

The Two-Cycle-System in TVET Teacher Training

The degree system at both national and international levels was supposed to follow comparable frameworks. The first-cycle degrees should offer access to second-cycle programs and second-cycle degrees should give access to doctoral studies. The new two-cycle-system in TVET Teacher Training marks a radical change in the training of TVET teachers. The traditional system consists of one-block degree programme at university lasting from four to five years with two Praktikum placements. The standard period of study finishes with the first state exam, which is followed by a probationary period (Referendariat) of one and a half to two years and finishes with the second state exam. Since the two-cycle-system only applies to the period of study located in university, TVET Teacher Training curriculum designers are faced with a particular challenge when considering how to map the traditional probationary period against the new structures.

Providers of TVET Teacher Training envisaged that the introduction of a two-cycle-system would result in new career opportunities for future graduates. The possibility for graduates to exercise flexibility in career choices on completion of each degree cycle was an aspiration of German curriculum designers for TVET. It was hoped that the two cycle structure would free graduates from a single career path (teaching) by enabling them to opt for alternatives at different stages of their study. This element was considered to be an important aspect in a rapidly changing job market (Thierack 2004:26).

A second, seemingly obvious, advantage of the two-cycle system was the possibility of shorter periods of study, which would enable graduates to enter the job market more quickly (Schulz 2005:114).

A third desired output of the new degree structures was an intensification of models of partnership to enhance practical training (Thierack 2004:25).

The adaptation of the two cycle degree was also intended to help 'internationalise' higher education. This term is interpreted by the Bologna Declaration to mean several things, each aspect of which would engender significant reconceptualizing of both curriculum design and the marketing of such programmes abroad (Ploghaus 2005:11). The integration of the European dimension in all curricular provision, (including opportunities for additional language acquisition and bilingual teaching), although present in some universities, has not been a driving factor for change in TVET in Germany. The aim of strengthening the status and quality of European higher education in the international context (Bologna 1999) can be seen to be

particularly ironic in the sphere of TVET in Germany, as Germany has enjoyed a long and distinguished tradition of TVET both in Europe and the wider global context (Green, Wolf, Leney 1999). Furthermore the priority for each academic institution for teacher training has been to recruit and train teachers for the home context since there is a shortage of well qualified TVET teachers all over Germany, particularly in technical areas. The prognosis for the next ten years is that the demand for TVET teachers will exceed the supply in Germany. According to KMK statistics there is currently a shortage of 8800 TVET teachers in Germany (innovelle 2006).

Despite this seemingly inward looking profile, German academic institutions have enjoyed successful international relationships in TVET Teacher Training at local levels, in a variety of forms, for example, joint programmes, Erasmus projects etc. The introduction of an international element, as a strategic intention, both in terms of clientele and provider represents a new and challenging dimension for TVET Teacher Training in Germany. This can be seen as something of a double edged sword, offering both opportunities and threats to academic institutions such as universities and Fachhochschulen. Opportunities for international expansion have been welcomed by most academic institutions with the result that a variety of collaborative programmes are now advertised in university publicity demonstrating engagement with the international dimension proposed by the Bologna Declaration. The adoption of ECTS has enabled institutions to use a common academic 'currency' for participation in a 'borderless' European Higher Education Area (Karran 2004), however this also poses questions of credibility and allegiance for TVET Teacher Training in Germany. A firm commitment to the traditional system in TVET Teacher Training, including compulsory state exams is borne out even in the newly evolving models of TVET Teacher Training. Few academic institutions have designed programmes which rely solely on the accumulation of credit points without the stringent application of a summative assessment at the end of the training period, whether this be during the university period of study, or during the probationary period. It is hoped that the newly designed module examinations will soon be considered 'equivalent' to the traditional 'state exam' (Ploghaus 2004).

Emerging Models in TVET Teacher Training

The influence of the Bologna Declaration on the development of new models in degree structures in TVET Teacher Training has resulted in a variety of approaches

in German universities. An analysis of new structures implemented by German academic institutions reveals three emerging models. For the purposes of this paper these models can be described as:

- The Consecutive Model
- The Top-Up-Model
- The Blended Model

The Consecutive Model

The most dominant model appears to be the Consecutive Model. This model is very similar to the former single block programmes in that the three educational strands of major, minor, and vocational education/didactics are integral to both cycles of study (see figure 1). An example of the Consecutive Model can be found at Berlin Technical University. Other Universities are considering this model as part of their portfolio e.g. Hannover University, Dresden University of Technology.

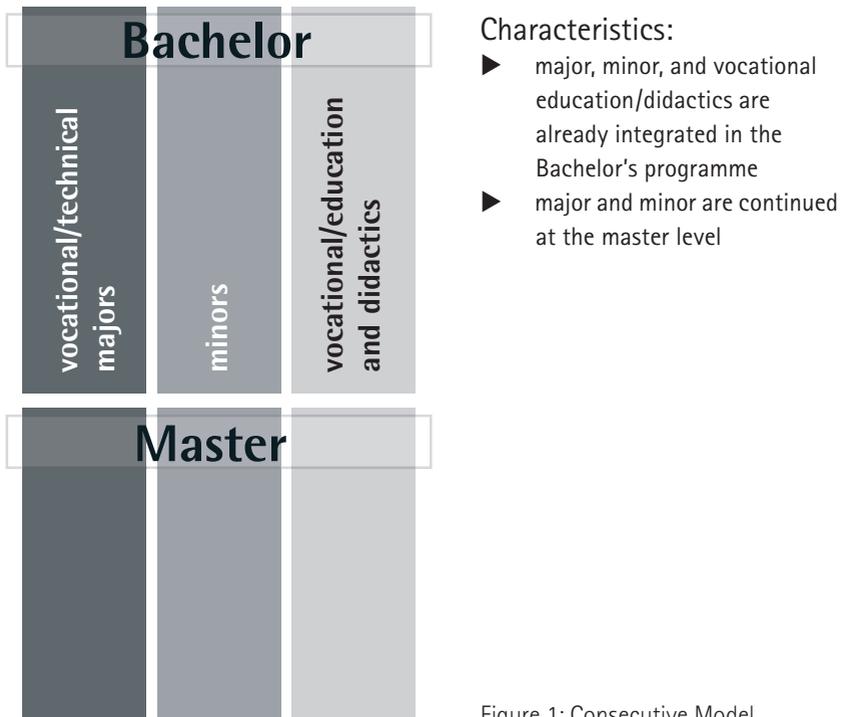


Figure 1: Consecutive Model

The Top-up-Model

In contrast to the Consecutive Model, the Top-up-Model introduces just one strand of teacher training at the Bachelor's level. This element is normally the technical or vocational strand. In this model other recognized aspects of teacher training such as didactics and minor subjects are only introduced at Master's level (see Figure 2) This model has been in operation at Hannover University since 2003-04.

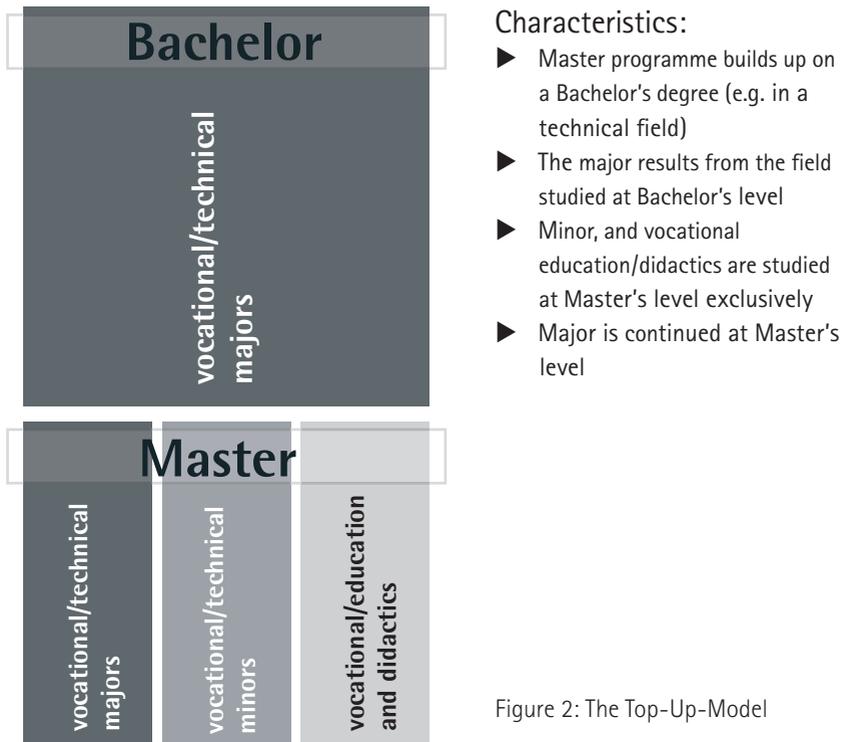
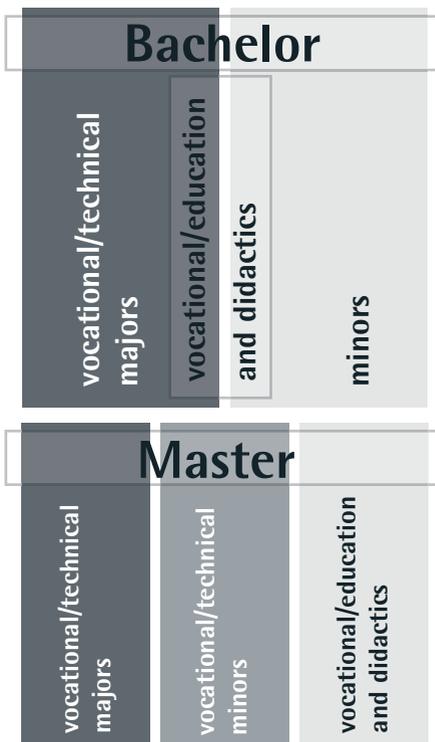


Figure 2: The Top-Up-Model

The Blended Model

The Blended Model offers a two cycle degree system which introduces two strands of teacher training at Bachelor level, together with one module of vocational education and didactics which is open to students from other faculties. The Master's degree offers opportunities to deepen understanding of all three strands, see Figure 3. This is an established model at Otto-von-Guericke University in Magdeburg (the Magdeburg Model).



Characteristics:

- ▶ Studies at Bachelor's level focus primarily the vocational/technical major, the minor is closely linked to the major
- ▶ Vocational education/didactics is delivered in a separate module. This module is open for students from other faculties (e.g. engineering)
- ▶ Studies of major, minor and vocational education/didactics are continued at Master's level

Figure 3: The Blended Model

Operational Aspects of the Blended Model

The single module of vocational education and didactics is offered in all subject disciplines at Bachelor's level. This module provides the link to the Master's level study where it is studied in greater depth see Figure 4.

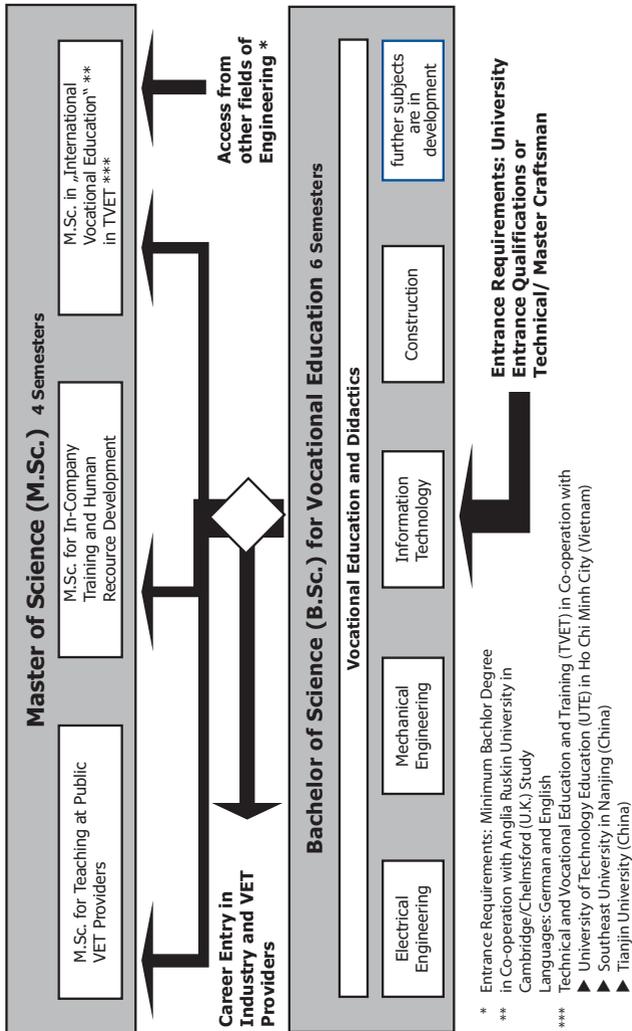


Figure 4: The Magdeburg Model

Advantages and Disadvantages of the New Models

The three emerging models described above offer both advantages and disadvantages for TVET Teacher Training in Germany. Although they have been explained as discrete systems in this paper, there is evidence to show that some universities are not limiting themselves exclusively to one model. Hannover University for example introduced the 'top up' model in 2003-2004, but there are plans for the Consecutive Model to be offered from 2008-2009. As each model becomes part of the established fabric of TVET Teacher Training, so the advantages and disadvantages of each model can be identified and monitored in relation to the envisaged outcomes of restructuring. To recap, the intended outcomes of restructuring included:

- New opportunities for flexibility in considering career options
- Shorter study periods
- Enhancement of practical training
- Internationalisation of degree programme

The significance of the concept of 'emergence' with regard to the different models for TVET Teacher Training structures cannot be overemphasised as the models will evolve according to the extent to which stakeholders are convinced or persuaded by their quality. Saarinen (2005) notes that 'international influences find their way into national policies persuasively rather than authoritatively'. The new degree models appear to be meeting the intended outcomes in a variety of ways both positively and negatively as follows.

New opportunities for flexibility in considering career options

New opportunities for graduates to consider alternative career options were envisaged as one outcome of the newly structured programmes. Although, in theory this applies to both the Master's and the Bachelor's level awards, in practice the broadening of career opportunities is more relevant to graduates at Bachelor level than for Master's degree graduates, who will normally have a particular career orientation. It is worth noting that this was always to be a challenge, as evidenced by Alesi, Bürger, Kehm, Teichler (2005 4.9) who demonstrate in a study conducted in France, the Netherlands, Austria, Hungary and the UK that employers demonstrated a lack of conviction about the feasibility of offering employment to Bachelor graduates from universities. Both the Bachelor's graduates and employers from all analysed countries (apart from the UK) perceive the Bachelor's Degree from a university to

fulfil only a part of the training necessary to enter a vocational profession with expertise and confidence. The same study reveals that Bachelor's graduates from universities in Germany could find employment in positions which were formerly filled by employees with a mid-level professional qualification (Fachwirt/Meister). Of those employers asked, 37.5% indicated that if they were to employ Bachelor's graduates from universities, they would be willing to offer them such positions. Only 29.9% expressed a willingness to offer them positions equal to their qualification. It is, however also worth noting that over one third of those employers surveyed (36.6%) said that each case would be considered on its individual. The survey revealed that the larger the company, the greater the acceptance of the Bachelor's degree from a university as an adequate level of qualification for entry into the profession. The authors of the survey conclude that the acceptability of the Bachelor's Awards as an entry qualification into a profession cannot yet be confirmed in Germany given the diversity of perspectives of employers. In this respect the changed structures alone cannot yet lay claim to increased employment opportunities for Bachelor's graduates from universities.

This scepticism for the possible employment benefits gained from Bachelor's Award degrees from universities is also reflected in the TVET Teacher Training sector in Germany „Polyvalenz von Abschlüssen auf Krücken“ (Spöttl 2004, S. 76) (Employment opportunities for degrees on crutches). This scepticism is grounded in the lack of confidence felt for new degree systems when compared with the success of the traditional German TVET Teacher Training system. It is feared that the introduction of the new Bachelor's programmes could undermine the high status and quality of the academic TVET Teacher Training. Furthermore it is feared that the possibility may exist to introduce positions at public VET colleges which could be filled with Bachelor's degree graduates from universities, thus undermining the current salary structures. Such issues of governance in TVET Teacher Training are identified by Kyvik (2004) as complicating factors to the process of reform. Indeed analysis of the three emerging models for TVET Teacher Training in relation to employment opportunities reveals that each model could have a different impact on such opportunities.

The Consecutive Model offers a programme which is closely focused on teacher training with the result that the graduates (at Bachelor's level) will already be experts in their (teacher training) field, however this could be a disadvantage if graduates try to find employment with their Bachelor's degree alone, outside the

teaching domain. Employers may not value the emphasis on teacher training in the first degree portfolio. Moreover employment opportunities in the public sector are currently limited. These factors alone mean that the graduates emerging from the Consecutive Model with a Bachelor's degree from a university could be faced with limited options for employment, which could be seen as a direct contradiction of one of the envisaged benefits of restructuring.

The Top-Up-Model offers a first degree programme which is predominantly focused on subject expertise in a given discipline. This being the case the graduates emerging from the Top-Up-Model could be considered to have the advantage over their peers graduating from the Consecutive Mode, when seeking employment outside teaching. However, although they maybe well qualified in their subject discipline, they will not have an equivalent depth of expertise in teacher training as those from the Consecutive Model, thus putting them at a disadvantage if they were to seek employment in education. The Top-Up-Model is commonly offered for areas in TVET where there is great need for teachers e.g. engineering, electrical engineering etc. This may initially appear to be an obvious solution to an employment crisis, however, the limited pedagogical training offered at Bachelor's level in the Top-Up-Model might even exacerbate the dearth of good teachers in shortage subjects if many Bachelor's graduates are employed from this route.

The Blended Model can be considered as a compromise between the first two models. It aims to provide graduates with alternative career options by focussing on areas which are relevant for employment outside teaching while simultaneously introducing pedagogy and didactics at the Bachelor's level, thus offering a compromise between the Consecutive and the Top-Up-Models. The Bachelor's graduates from this model may not possess the equivalent subject expertise as their counterparts from the Top-Up-Model, but their command of subject knowledge would enable them to compete for jobs in a non-teaching environment.

The majority of Master's level programmes in TVET Teacher Training in Germany are specifically career oriented, thus limiting choice in employment opportunities at this stage of training in TVET. Students at this level in TVET usually follow one career path. An exception to this is the 'Magdeburg Model' where three different types of Master's degree programmes are offered and only one of these leads to a career in teaching in the state sector (see Fig.4).

Transfer between programmes

When considering the flexibility offered by TVET Teacher Training programmes it is also worth noting the degree to which students are able to transfer between any given programme. Each model offers a different degree of flexibility.

Transfer between programmes would be problematic in the Consecutive Model. This model can be seen to produce the most secure professionals as the training includes subject expertise and didactics at each stage of the training. However this model does not lend itself readily to transfer. Although students can transfer credits, in terms of subject discipline, a seamless transfer would only be possible if students transferred to a programme following the Consecutive Model.

The Top-Up-Model offers most flexibility in terms of transfer from one programme to another. As long as students achieve their Bachelor's award they are entitled to register for a Master's programme leading to a career in TVET teaching.

The Blended Model is open to graduates from different models, the prerequisite being that graduates should have followed a module covering vocational education and didactics as part of their Bachelor studies. In this respect the Blended Model offers a solution which lies between the Consecutive and the Top-Up-Models.

Shorter study periods

Although the period of study can be seen to be reduced for a Bachelor's degree, the employment situation outlined above indicates that graduates emerging with a Bachelor's degree will probably still need to go on to study for a Master's degree if they are to gain employment. In this case the new study period of five years (to obtain a Master's degree) may, in some cases represent a longer period of study than the former system which may have required only four and a half years. This outcome would be an indication that the opposite effect of the original objective of shorter study periods, would have been achieved in Germany.

Enhancement of practical training

The link between theory and praxis has often been identified as a possible weakness in the traditional system of TVET Teacher Training (Nielson 2002, HRK 2006) and one of the aims of the Bologna Declaration was to strengthen the practical elements of TVET Teacher Training through the restructuring exercise. In this respect the reforms were welcomed as an opportunity to plan programmes with a strengthened element of practical training. Although this was a hoped for 'by product' the three emerging models do not demonstrate evidence of a strategic approach to restructuring which

would ensure the inclusion of more intensive periods or stronger links with practical training.

Since all Bachelor's and Master's programmes have traditionally included a practical element it has been difficult to envisage how this might be strengthened. One possible approach is to combine the university stage of TVET Teacher Training with the Referendariat (Schulz 2004:113). Schulz raises the question of the feasibility of a one year probationary period. This approach would simultaneously achieve two goals of Bologna by shortening the study period and strengthening the practical elements of TVET Teacher Training.

Internationalisation of degree programmes

The promotion of European dimensions through curricular development, inter-institutional cooperation, mobility schemes and integrated programmes of study, training and research as cited in the Bologna Declaration pose particular challenges for TVET Teacher Training in Germany although the expectation has been that in general terms degree programmes would be more attractive to international students (Alesi, Bürger, Kehm, Teichler 2005 4.8.3). The traditional focus for the TVET Teacher Training sector has been the German education system and employment market. Despite the apparently limited interest in an international dimension for TVET, the Magdeburg Model includes two Masters Programmes specifically designed to encompass an international perspective. Although the Bologna Process provides an opportunity for universities to develop international programmes, very few universities have taken advantage of this. Dresden University of Technology and Otto-von-Guericke University, Magdeburg are two universities which have done so. Although these programmes are proving to be popular with international students the experience to date is that reciprocal arrangements can prove challenging where an exchange requires relative fluency in a language other than English; for example, a cohort of students from Otto-von-Guericke University were registered on a dual awards international Masters degree programme (see Fig. 4) in 2005-6 programme in 2005-2006 and spent a semester in England but there were no British students to reciprocate the exchange. Otto-von-Guericke University also received a number of Chinese and Vietnamese students during the same year, but no German students went to China or Vietnam. The most cited reason given for this lack of take up was the potential for language difficulties.

Conclusion

This study concludes that although the demands of the Bologna Process are being met in Germany, there remains some inconsistency in the development of convergent programmes and the pace of change is sometimes hindered by the rate at which the new programmes are becoming recognised by employers. At the time of writing, many institutions are running both the traditional degree programme and the new two cycle programmes. The TVET Teacher Training sector faces particular challenges in this respect. The three emerging models, when considered together, offer a range of approaches to TVET Teacher Training, which in some respects represent broader thinking in terms of preparation for a vocational profession, however the new diversity of programme structures is beginning to pose questions for the stability or coherence of the TVET Teacher Training system within Germany with the result that although the requirements of the Bologna Declaration may be addressed, enabling mobility and flexibility within Europe, these two aims may be thwarted in the German context by the emergence of three models which do not always map neatly onto each other.

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Annex I

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UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training, Bonn, Germany

Importance of Developing and Implementing an International Master Degree Standard for Teacher and Trainer Education in Technical and Vocational Education and Training

The effective interaction between teachers/trainers and learners lies at the heart of high quality technical and vocational education and training. In fact, an overall improvement in vocational skills for employability and citizenship can only be realised if there is an improvement in the quality, effectiveness and relevance of teaching. Many, both in the developed and developing worlds, are increasing the emphasis they place on improving the capacity of technical and vocational education and training (TVET) systems, in recognition of the important role TVET plays in equipping individuals with relevant skills and knowledge for the job market. TVET can also better enable individuals to participate in social, economic and technological innovation processes. Therefore, embedding TVET into regional and national innovation structures is of crucial importance to the economic performance and social development of countries. Having a pool of skilled and knowledgeable people within the TVET industry is as important to the TVET industry as it is to the industries TVET serves.

The UNESCO office in Beijing and the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training in Bonn (Germany), in partnership with the Chinese National Commission for UNESCO and the Chinese Ministry of Education, organised an international meeting to develop strategies to increase innovation and excellence in TVET teacher education. The meeting was held in Hangzhou, China, from 8 – 10 November 2004. Sixty-eight experts participated from twenty-five countries, with a broad based representation from developing countries within the Asian region. Whilst

there have been many international meetings of TVET experts organised by UNESCO, and many international meetings of teacher training experts, the meeting in Hangzhou was the first time that an international group of colleagues have come together specifically to address a range of issues pertaining to TVET teacher/trainer education. The meeting gave considerable time to discussing ways of improving the quality of TVET professionals through advanced study. Specifically, the meeting considered the idea of a master-level programme in TVET. What is surprising to some is the large number of developing countries that are interested in a Masters in TVET programme.

There were three outcomes of the Hangzhou meeting providing the foundation on which our deliberations over the next two days were built. They are:

1. Agreement on the value of the framework developed by a consortium of European academics as the basis for further investigation regarding an international curriculum framework for a masters degree in TVET teacher education and research (see Annex II).
2. Agreement on the value of establishing a new international association in TVET (called UNIP), in order to progress the idea of a masters programme and other issues; and
3. Participants endorsed the Hangzhou Declaration concerning promoting innovation and excellence in TVET through improving programmes for training the trainers.

With regard to the International Framework for a Masters Degree for TVET Teachers and Lecturers, as the authors of the framework point out, it is the common consensus of opinion that the professionalisation of TVET personnel within the international community is of crucial importance for the pro-active development of co-operative relations; between workforce training and the innovation processes, and the application and implementation of the resulting ideas from the development process.

The international framework curriculum for a Master Degree in TVET therefore aims to define:

- A set of quality criteria for the education of teaching and lecturing staff working in initial and further education and training;
- A basis for future international scientific co-operation;
- A basis for the mutual exchange of students, lectures and researchers;
- A framework that can form a basis for the mutual approval of students' credits.

It is apparent that there is a need for such a programme.

Global economic competition increases the pressure to produce high-quality products. High-quality products and high quality, value-added work are seen as being at the core of economic success for 21st century economies all over the world. This has leant added emphasis when one realizes the increasing importance of ICT skills and knowledge. With these challenges, education, training and human resource development has become of outstanding importance for sustainable and competitive development of virtually every country worldwide.

Research on regional innovation systems has shown that technological, economic and social innovation processes are deeply embedded in the regional environments of learners, trainers and institutions. The trend of transforming colleges and institutions of training and education into regional centres of competence, with a moderating and consulting function in those processes, can be observed all over the world, despite cultural and institutional diversity. It holds for tailored courses for medium-sized, or large companies in industrialised contexts, as well as for targeted skills training measures for the informal sector in the developing world.

Looking at in-company organisational development and restructuring, one can also see the increasing attention, which is being paid to learning processes. Training and education are increasingly integrated into production and work-processes to achieve a balance between implicit experience-led learning and systematically contextualised training processes. This results in an upgrading of the sphere of direct value – added work for individual learning careers. However, the sustainable exploration of the learning potentials of work processes needs highly developed expertise, in the optimal design of complex arrangements for teaching and learning.

In both instances, learning is seen more and more as a life-long and 'life-wide' process, which not only takes place at the individual level but also at the organisational level. Both aspects confront those who are responsible for the shaping and design of learning processes with new challenges. Their task is to equip learners with the ability for lifelong learning with meta- and self-directed- learning competencies – and to moderate and stimulate processes of organisational and regional learning.

Worldwide, roughly two-thirds of the workforce is qualified at the intermediate level,

which corresponds to technical and vocational education and training. Vocational education and training and human resources management can be seen as one of the key professions in the 21st century. Movements towards the professionalisation of education and training can be found in both in developed and developing regions. In the Global Setting reference can be made to both 'Globalisation and Localisation'. However, economic processes have been increasingly overcoming national borders or other barriers. Despite nationally specific features, common product and process standards have become increasingly binding. International co-operation inside multinational enterprises and between companies that function globally has become a key issue of sustainable economic success.

The implementation of an international framework curriculum for a Master's programme in Technical and Vocational and Education and Training will facilitate a number of important matters, these being:

- This defined standard will establish a basis for national and international accreditation of course programmes and will allow for the development of an international credit transfer system;
- It will facilitate the international exchange of students and lecturers
- It will encourage the development of international co-operation on TVET innovation and research;
- It allows for the self-sustainable and long-term development of professional capacity in TVET;
- It helps to develop TVET to become an integrated force in national and regional innovation systems; and
- It helps to promote vocational disciplines which embody gender equity/equality; and intercultural understanding for student recruitment policy making processes.

In order to help strengthen and upgrade technical and vocational education and training, it is clear that the establishment and implementation of a high quality Masters Degree for TVET trainers has much to contribute in this regard. UNESCO-UNEVOC will remain active in this area, since it believes that "Training the Trainers" is a key component to improving the quality and status of TVET.

Annex II

International framework curriculum for a master degree for TVET teachers and lecturers

Objectives

It is the common consensus of opinion that the professionalization of TVET actors within the international scientific community is of crucial importance for the pro-active development of co-operative relations; between workforce training and the innovation processes and the application and implementation of the resulting ideas from the development process. The international framework curriculum for a Master Degree in TVET aims to define:

- A set of quality criteria for the education of teaching and lecturing professional in initial and further education and training.
- To provide a basis for future international scientific co-operation
- To provide a basis for the mutual exchange of students, lecturers and scientists.
- To provide a framework that can form a basis for the mutual approval of students' credits.

Identified needs

Global economic competition increases the pressure to produce high-quality products. High-quality products and high-quality, high-value-added work are seen as being at the core of economic success for 21st century economies all over the world. This is emphasised by the increasing importance of ICT skills and knowledge. With these challenges, education, training and human resources development has become of outstanding importance for a sustainable and competitive development for almost every country worldwide. Research on regional innovation systems has shown that technological, economic and social innovation processes are deeply embedded in regional milieus of actors and institutions. The trend of transforming colleges and institutions of training and education into regional centres of competence with a moderating and consulting function in those processes can be observed all over the world, despite cultural and institutional diversity. It holds for tailored courses for medium or large companies in industrialised contexts as well as for targeted skills training measures for the informal sector in the developing world. Looking at in-company organisational development and restructuring, one can also see the increasing attention which is being paid to learning processes. Training and education are more

and more integrated into production and work-processes to achieve a balance between implicit experience-led learning and systematically contextualised training processes. This results in an upgrading of the sphere of direct value added work for individual learning careers. However, the sustainable exploration of learning potentials of work processes needs highly developed expertise in the optimal design of complex arrangements for teaching and learning. In both instances, learning is seen more and more as a life-long and also 'life-wide' process, which not only takes place at the individual but also on the organisational level. Both aspects confront those who are responsible for the shaping and design of learning processes with new challenges. Their task is to equip learners with the ability for lifelong learning with meta- and self-directed-learning competencies - and to moderate and stimulate processes of organisational and regional learning.

Worldwide roughly two thirds of the workforce is qualified at the intermediate level which corresponds to technical and vocational education and training. Vocational education and training and human resources management can be seen as one of the key professions in the 21st century. Movements towards the professionalisation education and training can be found both in developed and developing regions. The apparent paradox of simultaneous convergence and divergence of education and training can be observed in a global setting often labelled as 'Globalisation and Localisation'. However, economic processes have been increasingly overcoming national borders or other barriers. Despite nationally specific features, common product and process standards have become increasingly binding. International co-operation inside multinational enterprises and between global acting companies advances to a key issue of sustainable economic success.

The implementation of an international framework curriculum for a master programme in Technical and Vocational Education and Training will demonstrate the following merits.

- This defined standard will establish a basis for national and international accreditation of course programmes and allows for the development of an international credit transfer system;
- It will facilitate the international exchange of students, lecturers and scientists;
- It will encourage the development of international co-operation on TVET innovation and research;
- It allows for self-sustainable and long-term development of professional capacity in TVET;
- It helps to develop TVET to become an integrated force in national and regional innovation systems.
- It helps to promote vocational disciplines which embodies gender equity/equality;

intercultural understanding for student recruitment policy making processes.

Description of the master degree course

The master course is targeted at graduate students in Vocational Education i.e. teachers, trainers, and lecturers.

Issued degree: Master in Technical and Vocational Education and Training (TVET)

Length of study: 90 to 120 Credits¹ according to national regulations.

The table below shows the 12 vocational disciplines. The lists of topics that are shown in the table are open lists. Also one or the other of the topics might be incorporated into another vocational discipline according to regional or national settings, e.g. catering might be a topic in Leisure, Travel and Tourism or in Agriculture, Food and Nutrition.

The minimum entry requirements are degrees or equivalent competences to the Bachelor level. It is recommended to establish at the offering institution a commission which decides on issues concerning the study course, especially in terms of different career pathways and institutional settings in the different countries and of non-formal learning accreditation.

¹ One credit is equivalent to a workload of 25 to 30 hours (according to the Bologna definition)

Frame Curriculum

Studies of Education, TVET and Vocational Disciplines

39 credits

Three of the modules have to be concluded with a written assignment which will be assessed according to defined criteria. One out of the Modules 2, 3 or 4 will be realised in project form and concluded with a project report. In each unit the student either has to write and present a paper or to take part in a written assessment.

Foundational studies

		credits
Module 1	Foundations, theories and structures of education, TVET and HRD	12
M1-01	Foundations and theories of education, TVET and HRD	3
M1-02	Institutional and technical pre-requisites of TVET and HRD	3

M1-03	TVET and HRD in a historical and cross-cultural perspective	3
M1-04	Learning in work-processes and working in learning-processes	3
Module 2	Shaping TVET connected to the vocational discipline	9
M2-01	Development and evaluation of vocational curricula, media and learning environments	3
M2-02	TVET in theory and practice: Foundations of vocational teaching and learning, innovation, development and organisation of learning-processes	3
M2-03	Human development, learning and education in the framework of initial education and lifelong learning within its societal context	3

Advanced Studies

credits		credits
Module 3	Teaching and learning in exemplary fields of practice	9
M3-01	Application of methods and techniques of educational and vocational research and development	3
M3-02	Teaching, coaching and moderation of learning in career education and workforce development. Assessment and analysis of individual learning styles	3
M3-03	Development and application of media and learning environments	3

Module 4	Management und evaluation of TVET and workforce development	9
M4-01	Evaluation, measurement and exploration of educational supply and demands	3
M4-02	HRD and organisational development in TVET and workforce development	3

M4-03	Planning and development of programmes and courses - Methods of exploring work-process-knowledge	3
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Studies of the vocational discipline and its didactics

18 credits

Foundational studies

		credits
Module 5	Vocational Discipline I	6
M5-01	Introduction to the vocational discipline, history of the vocational field, standards and qualifications	3
M5-02	Occupational analysis and Curriculum development	3

Advanced studies

		credits
Module 6	Vocational Didactics in the Discipline I	12
M6-01	Hands on planning, realisation and assessment of a teaching unit in the occupational discipline, application of discipline specific methods, media, and practical sessions. 9	
M6-02	Learning in work-processes, occupational and work process studies and curriculum development	3

Further studies

36 credits

		credits
Module 7:	Area of specialization in vocational discipline (working with specific research and development methodologies related to vocational disciplines)	18

18 credits

		credits

Model 8:	Area of specialization in vocational pedagogy: <ul style="list-style-type: none"> • Human resource development • International, comparative and cultural studies on TVET • Vocational Education for target groups with special needs • Assessment and evaluation 	18
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Thesis

15 credits

The student will propose a thesis' title and topic which has to be accepted by the Master's Committee. From the date of acceptance the Master's thesis has to be submitted within three months

		credits
Thesis	Individual topic	15

Practical studies

15 credits

		credits
Practical Studies	Planning and organisation of learning, teaching and training	15

Organisational requirements

The Master Study Course will be run by a higher education institution or a consortium of such institutions, which is entitled to issue doctoral degrees under the regulations of the respective country. Generally, to run master degree courses will develop (will be connected with) a certain amount of research capacity and a certain quality of research capabilities at the respective institutions. The same holds for the qualification of teaching personnel. It is recommended, that several related occupational disciplines/domains are offered at an organisational entity, in order to assure quality by synergies. International research cooperation has to be incorporated into the running of the course.

InWEnt – Internationale Weiterbildung und Entwicklung gGmbH Capacity Building International, Germany

InWEnt – Capacity Building International, Germany, stands for the development of human resources and organisations within the framework of development cooperation. InWEnt offers courses that cater to skilled and managerial staff as well as decision makers from business, politics, administrations and civil societies worldwide.

With the education, exchange and dialog programmes for approximately 55,000 persons per year, InWEnt constitutes the largest joint initiative of the German Federal Government, the Länder (German federal states) and the business community. The centre in Bonn and 30 other locations in Germany and abroad employ roughly 850 staff.

The organisation commands a total annual budget of approximately €130 million. The Federal Government is main shareholder and represented by the Federal Ministry for Economic Cooperation and Development (BMZ), which is also the main financial contributor. Approximately 40 percent of the budget is from further commissioning bodies, in particular the Federal Ministry of Education and Research, the Foreign Office (AA), the Federal Ministry of Economics and Technology, and, increasingly, the European Union (EU) as well as various further multilateral organisations. Main cooperation partners are the KfW Bankengruppe (KfW banking group), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German Technical Cooperation) and private business foundations.

InWEnt was created in 2002 through the merger of Carl Duisberg Gesellschaft e.V. (CDG) and the German Foundation for International Development (DSE). In keeping with the tradition of the predecessor organisations, both Länder (German federal states) and German business are shareholders and thus ensure that InWEnt is firmly anchored in society.

Within its business fields, InWEnt amalgamates the decades of expertise and regional experience contributed by CDG and DSE. The methodological repertoire is structured along broad lines, making it possible to customise modules to fit the specific requirements of customers and tasks and provide appropriate solutions. The employment of new media permits the development and implementation of innovative knowledge management methods, the launching of international virtual learning communities and the promotion of multiplier systems.

UNESCO-UNEVOC International Centre

Our Profile

The UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training was established in Bonn, Germany, in September 2000, based on a Host Country Agreement signed earlier that year between UNESCO and the Government of Germany. The Centre was inaugurated on 8 April 2002.

The Centre seeks to help UNESCO's 191 Member States strengthen and upgrade their systems of technical and vocational education and training, and to promote a greater availability of skills development options so as to implement Article 26 of the Universal Declaration of Human Rights and UNESCO norms and standards concerning technical and vocational education and training.

The Centre undertakes its activities through a world-wide network of 250 UNEVOC Centres in 158 countries. It creates synergies with UNESCO Headquarters, UNESCO Institutes/Centres and Field Offices; and works in close partnership with other international and national agencies in the field of technical and vocational education and training.

Our Vision

The UNESCO-UNEVOC International Centre acts as part of the United Nations mandate to promote peace, justice, equity, poverty alleviation, and greater social cohesion. The Centre assists Member States develop policies and practices concerning education for the world of work and skills development for employability and citizenship, to achieve:

- access for all
- high quality, relevant and effective programmes
- learning opportunities throughout life.

The Centre contributes to increased opportunities for productive work, sustainable livelihoods, personal empowerment and socio-economic development, especially for youth, girls, women and the disadvantaged. Its emphasis is on helping meet the needs of developing countries, countries in transition and those in a post-conflict situation.

Our Work

The UNESCO UNEVOC International Centre acts as a key component of UNESCO's international programme on technical and vocational education and training. It also works to support UNESCO's mandate for Education for All and Education for Sustainable Development.

The Centre achieves this through taking action to strengthen and upgrade the world-wide UNEVOC Network (Flagship Programme), with particular reference to:

- Stimulating international and regional cooperation concerning human resource development
- Promoting UNESCO normative instruments and standards
- Promoting best and innovative practices in TVET
- Knowledge sharing
- Mobilizing expertise and resources
- Strengthening partnerships with other relevant agencies

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