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Platform

Post-Study Pre-Service Practical Training Programme for TVET Teacher Students

Dadang Kurnia

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List of Abbreviations

BiBB	Bundesinstitut für Berufsbildung
BMBF	Bundesministerium für Bildung und Forschung
BPSDMP-PMP	Badan Pengembangan Sumber Daya Manusia Pendidikan dan Kebudayaan – Penjaminan Mutu Pendidikan
CBT	Competency Based Training
CPDP	Continuous Professional Development
CTE	College of Technical Education
DACUM	Developing a Curriculum
DGHE	Directorate General of Higher Education
DIKMEN	Directorate General for Secondary Education
EBG	Europäisches Bildungswerk für Beruf und Gesellschaft
ECTS	European Credit Transfer System
GDVT	General Department of Vocational Training
GTW	Gewerblich Technische Wissenschaften
GWK	Gemeinsame Wissenschaftskonferenz
HRK	Hochschulrektorenkonferenz
KMK	The Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany
LPMP	Lembaga Penjaminan Mutu Pendidikan
LPTK	Lembaga Pendidikan Tenaga Kependidikan
MoEC	Ministry of Education and Culture
MoET	Ministry of Education and Training
MoLISA	Ministry of Labour – Invalids and Social Affairs
NOSS	National Occupational Skills Standards
NVQ	National Vocational Qualifications

NW	North-Rhine-Westphalia
OECD	Organization for Economic Cooperation and Development
PISA	Programme for International Students Assessment
PLP	Professional Training Programme
PLPG	Pendidikan dan Latihan Profesi Guru
PPG	Pendidikan Profesi Guru
PPL	Praktik Profesi Lapangan
PT	Perguruan Tinggi
PTP	Practical Training Programme
RCP	Regional Cooperation Platform
SD	Sekolah Dasar
SKS	Satuan Kredit Semester
SMP	Sekolah Menengah Pertama
SMA	Sekolah Menengah Atas
SMK	Sekolah Menengah Kejuruan
SKKNI	Standar Kompetensi Kerja Nasional Indonesia
TIMSS	Trends in International Mathematics and Science Study
TVET	Technical and Vocational Education and Training
UNESA	State University of Surabaya
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNM	State University of Makassar
USD	US-Dollar
UTE	Universities of Technical Education
VND	Vietnam

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1 Introduction

1.1 Problem statement

The era of globalization, in which various sectors no longer appear to contain national boundaries presents all nations with distinct dichotomies in the labour market. On the one hand, globalization produces a wider occupational spectrum providing individuals with broader opportunities for selecting jobs, on the other; the competition has become fierce in acquiring appropriate job opportunities. Such competition necessitates job seekers to radically improve upon their qualifications. Moreover, qualifications already attained require continuous updating for their knowledge and abilities to keep pace with the demand of the labour market. Such demands pose a huge challenge to educational politics, in establishing an education system capable of meeting the needs of the labour market – one that can cope with the rapid development of technology and work organization. Extreme changes have occurred and are occurring in terms of work organization, management of human resources, the relationship between technology and skill requirements, and employment and work arrangements (self-employment, part-time work etc.).

Of the sectors of education that may provide solutions to the above-mentioned problems, technical and vocational education and training (TVET) has a prime role. In many developing countries TVET has become of vital national significance for its value in: (1) preparing the younger generation to enter working life and (2) responding to the ineluctable demand of the development process, to provide the nation with a quality work force educated in line with the needs of the goods and services industries. Hence, the organization of vocational education - in a specific sense - aims at developing the occupational capacity of its participants, comprising occupational, social and methodical competences. Developing such competences creates the desired end result and the learner's suitability for real employability.

One of the deciding factors in the development of occupational capacity in TVET is available and sufficiently competent teachers. The TVET teacher plays a crucial role in determining the quality of TVET outcomes. In this study, vocational education teachers are highlighted, with the focus on vocational education in formal education at upper secondary level. As has been reported by a variety of formal bodies such as the World Bank and UNESCO-UNEVOC, we find that TVET teachers in developing countries, particularly those in the Southeast-Asian region, far too frequently fail to meet the demands of the world of work. The teacher's poor pedagogical skills significantly decrease the process of know-how transfer to the students with the result that education in its entirety loses its effectiveness. This is caused by student learning being dominated by passive learning processes offering little or no support in the development of much-needed professional competence. In addition, the teachers' own industrial skills are revealed to be a critical weakness.

In many developing countries, e.g. Indonesia, this condition is inherent; that is to say an integral facet of the university-based structure or/and the model of TVET teachers' development. From the very outset the system does not require the student to have comprehensive industrial experience neither prior to entering the study programme nor following graduation from study. During the study process the share of practical training is often negligible. Training is dominated by the intermediation of theories, most of which have been long outdated due to the lack of research activities and poor programmes for furthering the professional development of teacher educators in the institutions. Clearly the knowledge and skill deficit of teacher candidates regarding up-to-date developments in the world

of industry is inevitable. The logical question that such weakness begs is of course “how can TVET participants be updated if the capacity of their teachers is out of date?”

The quality of education outcome is extremely dependent on the quality of teachers. If we are seriously committed to high quality vocational education and training, it is imperative that we have teachers with the experience and skills to deliver it. The consensus regarding the importance of vocational and practical learning must increase whereby it can lead to a new layout in the qualifications of the teacher. Educators and parents have long argued that effective teachers are the key to improving student’s achievements and a number of research studies conducted since 1990 fully support this belief. Hanushek (1992) for instance found that students, taught by teachers at the top of the effectiveness scale, attain as much as an additional year of growth in student learning compared with being taught by teachers near the bottom of the scale. This means a gain of 1.5 years of academic growth rather than 0.5 years of growth in a single year (OECD, 2009, p. 13). Several other studies confirmed these study results (Sanders and Rivers, 1996; Rivkin et al., 2001 in OECD, 2009).

Given the key role of teacher quality in determining the quality of education outcomes in general and occupational competence in particular, there is an urgent need to establish programmes aimed at improving teachers’ professionalism. One of the programmes mooted is a pre-service training for prospective TVET teachers (PTP). This programme can be implemented for graduates from TVET teacher training programmes upon completion of their study. The programme constitutes a post-study education and training programme to be implemented during the transition period, in other words, before the prospective teachers are to carry out their duties independently in vocational schools. Training schemes such as these have already been held in vocational teacher education institutions - in Indonesia or Germany for example. The programme in Indonesia is known as PLPG (*Pendidikan dan Latihan Profesi Guru*). However, this programme is considered to be woefully inadequate in preparing professional teachers. As well as suffering from its extremely short duration of 2 weeks, the programme concentrates only on imparting theoretical knowledge regarding methods of teaching and learning. Furthermore, the programme is designed for in-service training, targeting teachers already working in vocational schools. Participation in this PLPG is a prerequisite for teacher certification, originally intended for capacity development; it has ultimately resulted in a scheme solely for improving the teachers’ economic situation (based on interview data).

This study aims to explore a variety of aspects related to teacher training in Indonesia, Vietnam, China, and Germany, including the basic conditions and outcome of the existing teacher training programmes, up to concepts of PTP already in existence or as in the case of Indonesia, still in their planning stage.

1.2 Specific objective of the study

The project intends to map the schemes of pre-service practical training programmes (PTP) for TVET teachers existing or under development in the countries in question for the purpose of providing the necessary information to the RCP partners, and contribute to the development of pre-service practical training programmes for TVET teachers of the partner countries.

The project intends to give an overview of the relevant existing or planned concepts in Indonesia, Vietnam and China, as well as in Germany. From these recommendations for the development and implementation of models of post-study, pre-service practical training programmes for TVET teachers in Indonesia and in Vietnam are to be drawn up. Those for whom the recommendations are intended will be the institutions responsible for providing the respective training, but it is also designed to help

policy makers in the respective countries who are free to use the project findings in constructing the legal and/or administrative framework required for such programmes.

1.3 Structure of the study

In general this study is made up of six chapters comprising theoretical and empirical aspects. The detailed structure of the study is as follows:

- Chapter one, being the opening chapter, provides a general overview of the problem regarding TVET teachers' professionalism in correlation to its contribution determining the quality of the vocational education outcome. The discussion in this section focuses on the problem of TVET teachers' professionalism in developing countries, mainly in the Asia region, followed by information on research design and research methodology.
- Chapter two discusses the theoretical aspects pertaining to TVET teacher education. The discussion begins with an overview of philosophical aspects of vocational education, followed by a largely normative description on how the researchers of this study understand “competence-based approaches” in TVET and TVET teacher education.
- Chapter three discusses the methodology for carrying out the research.
- Chapter four represents the core of the study. The results are presented here of empirical research conducted in the three partner countries i.e. Indonesia, Vietnam and China. Research results relating to various aspects of teacher training, ranging from regulatory aspects up to the organization of teacher training is discussed in this section. To provide comparison, the teacher education system currently implemented in Germany is briefly described. The chapter ends with a comparison of the different national schemes.
- Chapter five places the research findings in relation to the requirements implied by the normative, theoretical model of competency-oriented vocational education and training. The analysis of various aspects helps the reader acknowledge the extent to which teacher education systems have been developed, and make clear what problems the educational actors are confronted with in their attempts to develop and implement pre-service training for TVET teachers.
- In chapter six, the final results of this study have been condensed into a number of recommendations. The recommendations intend to provide constructive input and a well-founded reference in the attempt to improve systems of vocational teacher education in the countries involved in this project. The recommendations focus, most significantly, on those aspects of the system relating to the organization and implementation of pre-service training programmes for prospective teachers to ultimately improve the process of their professionalization.

2 Theoretical basis

2.1 Relevance of pre-service practical training programme (PTP) for TVET teachers

As already explained in the introductory section, the quality of TVET teachers is one of the decisive factors determining the quality of school-based vocational education, which prevails in all three Asian countries addressed in this study. All three countries simultaneously face problems related to the quality of vocational education. Studies on vocational education in Indonesia have shown, that in recent years graduates from upper secondary vocational schools do not have better job opportunities directly after graduation than graduates from upper secondary general education schools (Chen 2009, Newhouse & Suryadarma 2009, Worldbank 2010a). This is in spite of the fact that vocational schools are expected to prepare young people explicitly for the world of work. One of the reasons behind lies in the fact that the linkages of the vocational curricula to the manufacturing sector are simply not strong enough (Gropello et al. 2011, pp 23 ff.). This attribution actually is seen to be the responsibility or failing of the teachers. Beginning from the school year 2006/2007, vocational schools have been requested to develop their own curricula based on the concept of school level curricula (naturally to take into account and be in line with national education standards), and link it to the needs of the local economy (Regulation of Minister of National Education/*Permendiknas* 24/2006). In China we find similar settings, and in Vietnam the relevance of vocational education and training is under scrutiny.

Research on vocational teachers has shown that vocational teachers are acting in a “double ill-defined domain” of expertise (Grollmann 2004). This refers to the fact that not only the rules of problem solution in the professional domain lack clear definition but that at one and the same time defining the problem is the responsibility of the professional individual (Grollmann & Bauer 2008). This affects both, pedagogical problems and the content of vocational education and training (ibid, p. 388). Consequently, “the relevance to practice of the specialized studies (author's comment: of teacher education studies) [...] is felt to be deficient” and “the lack of any interlinking of the academic studies with the concrete professional and teaching situation” is criticized (ibid, p.386). It is highly likely this problematic situation comes as a result of the fact that universities tend to educate academics, but barely focus if at all on preparing students for work life as a professional. The latter task, by definition, is usually one taken on by institutions of professional or vocational education.

The question here is, how when going about developing such professionalism one can gain the support of structured and formalized means, that can equip the individual with the professional capacity of vocational teachers so that the moment they go out into the real world they can largely act independently in their professional domain. Different countries pursue different approaches to achieve this goal. There is a broad range of approaches. For instance hiring only experienced experts in their relevant subject (technical) area and introducing those experts into the field of pedagogical professionalism by a combination of academic studies. There is also an “apprenticeship” form. In Norway (ReferNet Norway 2011), there is a kind of guided probation period between university studies and permission to act independently as a fully-fledged vocational teacher as exists in Germany or China.¹ Another example is that planned for Indonesia, of implementing an additional education and training programme after university studies but before actual being hired as a teacher.

The examples show, that a form of introductory period into the teaching profession is considered necessary, very much similar to how novices are introduced into a community of practice (Lave, Wenger 1991). But in order for TVET teachers to perform their task in preparing the young for the world of

¹ See sections 4.4 and 4.3 in this report.

work, it must be kept in mind, that they are required to be members of two distinct communities of practice. On the one hand the vocational/occupational/professional community of practice they are expected to introduce their students into and on the other the professional community of vocational educators.

Graduates from TVET teacher study programmes in the various countries will have a variety of educational and professional careers behind them and be in possession of different abilities and experiences. For this reason it is deemed essential to consider which aspects of professionalization should be focused in creating a formalized introductory programme to the vocational teacher profession. In Indonesia, where the majority of TVET teacher students have entered directly from upper secondary school into the university programme and have no vocational or professional practice in their field of teaching, it has to be imperative that such candidate teachers are introduced into both communities of practice. This is not the case with Norwegian candidates who have usually gained sufficient experience of their technical field.

2.2 The competence approach

2.2.1 History, meaning, development and purpose

Competency-oriented approaches have been implemented widely, especially in vocational education and training, but also in fields of academic education for teacher training.

Mulder et al. (2007) state, that the concept of competence can be traced back to ancient Greece (Plato, circa 400 BC) and even Babylon (Hammurabi, 1792 to 1750 BC). They tell us “competence even appeared in the Latin language in the form of ‘Competens’, which was conceived of as being able and allowed by law/regulation, and in the form of ‘Competentia’; perceived as (cap)ability and permission. By the sixteenth century the concept was already recognized in English, French and Dutch; the use of the Western European words ‘competence’ and ‘competency’ can be dated to this time”.

For the current professional use of the term competence, Mulder summarizes the recent developments as follows²:

“To summarise the developments of the professional use of the concept of competence, McClelland (1973) pointed at the value of testing based on competence rather than on intelligence, and his work was used in the practice of management selection and development. Gilbert (1978) put the competence concept in a wider framework of performance improvement, at societal, organisational and individual levels. Various authors, including Zemke (1982) and Dubois (1993), applied the concept of competence in education and training. Various professional associations developed competency profiles for professional licence reasons, as well as for self-evaluation and development. Public authorities also developed profiles, such as those for teachers, for assessment and examination purposes. Prahalad and Hamel (1990) were to a large extent responsible for the successful introduction of the concept of core competence in corporate strategy. Because they focused on core competencies, with which processes could be directed, the concept was appealing. It was translated to systems of competence management, which functioned as vocabularies in which expectations and processes could be made transparent. Parallel to these developments the concept was used intensively in developing competency based vocational training.” (Mulder 2007, p. 10-11).

² For a more detailed discussion see Mulder (2007)

For vocational education and training the terms competence, competency, and competency-based training (CBT) are usually associated with the developments sketched by Mulder, but also with the introduction of National Vocational Qualifications (NVQ) in the United Kingdom, of CBT in Australia (Guthrie 2009) and subsequent developments in other countries. The emphasis on competence or competencies is usually in line with the philosophy of standards-based and outcome-oriented education and training³ and with political decisions to implement national or regional qualification frameworks⁴.

For teacher education, including teacher education for TVET, the competence debate in the 1990s was enlivened by the implementation of international students' competency tests like the "Programme for International Students Assessment" (PISA), the "Trends in International Mathematics and Science Study" (TIMSS) and others. The deficiencies revealed by the test results were attributed to weaknesses of the respective education systems. As a result, improving the competence of teachers was considered as one of the means for improvement. One of the examples that best illustrates this is the introduction of the 2001 "No Child Left Behind Act" in the USA stipulating public schools hire only "highly qualified" teachers. Germany too is an example, as in the framework of the Bologna Process and as a result of the so-called PISA-Schock discussions on teachers' competences were held and in 2004 teacher standards were introduced to improve teachers' competences. Other countries have also introduced teacher standards, e.g. Indonesia in 2007.

In Germany discussion on teachers' competences and teacher standards is, in part, highly controversial, most likely caused by differing interests and different perceptions of the term "competence".

2.2.2 Some theory on competence

Contemporary English language dictionaries state the terms 'competence' and competency' to be synonyms indicating 'the quality or state of being competent'. The word competent means 'having requisite or adequate ability or qualities' or 'having the capacity to function or develop in a particular way' (Marriam Webster) or 'the ability to do something in a satisfactory or effective way', denoting either 'a person's range of skills or knowledge' or 'a skill needed for doing a particular job or carrying out a particular task' (Macmillans). Marriam Webster also defines "competency" as "an ability to do something, especially measured against a standard". In the educational sciences, both terms are frequently interchangeable⁵. However, the term "competence" is considered most precise when it is used to describe the sense of a holistic property of a person in a certain area of expertise, and the term competency is distilled to mean the sense of a person's ability to handle a specific task or area of duty.

It must be admitted that the concept of competence on the one hand according to Ellström (1997, cited according to Röben 2008) is a quite fuzzy one, and yet on the other hand the meanings of the term are quite distinct in different academic fields of study, different areas of application, and in different national or language cultures. It is not our intention to elaborate further but our wish that this be kept in mind when dealing with literature on competence.

Aside from the language issue, Mulder et al. (2007) distinguish three traditions of competence and competence research, quite well summarized by Guthrie (2009, p. 18):

1. The behaviourist approach: which stresses the importance of observing successful and effective job performers and determining what differentiates them from their less successful counterparts (This is predominantly US based)

³ For an introductory reading on educational standards see e.g. Bergmann and Mulkeen (2011)

⁴ For a discussion of NQF's see e.g. Young 2005

⁵ See for example the discussion in Guthrie (2009), pp. 17-20

2. The generic approach: which aims at identifying the common abilities that explain variations in performance
3. The cognitive approach: which includes all the mental resources of individuals that are used to master tasks, acquire knowledge and achieve good performance.

For the purpose of education and training another three schools that differ in their approach to the construct “competence” can be identified.

1. The utilitarian approach, which targets the ability to perform in certain jobs or tasks to provide qualifications for the labour market. Many national qualification frameworks, mainly based on a task analysis framework like DACUM or its variants, apply this approach, e.g. the English NVQs, the Australian qualification framework or the Malaysian National Occupational Skills Standards (NOSS).
2. The key competence approach (its heyday was at the end of the 20th century) based on the assumptions, a) that specialized (technical) knowledge very quickly becomes obsolete due to rapid technological development, b) that the manufacturing economy is replaced by the service economy, and c) generic competences exist enabling people to perform in every kind of job or occupation.
3. The holistic acting competence approach, which emphasises each individual’s right and obligation to participate in the shaping of the society and world of work, the pursuit of high quality, individualized products and services and in the process to level hierarchies in the workplace combined with the notion of expertise in an occupational or professional domain.

The holistic acting competence approach must be considered as the most suitable one for modern societies and economies. Most recently Malaysia has introduced alternatives to its Anglo-American influenced system of National Occupational Skills Standards, and England is in the process of revising its NVQ system. In terms of philosophy the holistic competence approach refers mainly to the above-mentioned cognitive approach of competence research, combined with elements of the shaping paradigm developed by Heidegger (Heidegger 1997) and the Dreyfus&Dreyfus-based Novice-Expert paradigm (Dreyfus and Dreyfus 1986).

2.2.3 Competence in teacher education

The Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (KMK) put forward the following definition of competence for the field of vocational education:

“[competence to act] is viewed here as the readiness and ability of the individual to act in an appropriately thought-out as well as individually and socially responsible manner in occupational, social and private situations. Competence to act unfolds in the dimensions of specialized competence, personal competence and social competence.” (KMK 2000, own translation)

For teacher education, the KMK published standards in the year 2004.

“Standards in teacher education describe the requirements that are set with respect to the acting of educators. They refer to competences, and thus to abilities, skills, and attitudes an educator has available to master the requirements of her or his profession.” (KMK 2004, own translation)

The standards do not actually elaborate on the competence areas mentioned for vocational education. Instead, they name tasks in four areas of activity that an educator should be able to accomplish successfully after graduation. Those areas are: teaching, educating, evaluating and assessing, and innovating. Tasks are formulated as follows:

- Graduates initiate and support different forms of learning.
- Graduates recognize disadvantages [of individual students] and implement pedagogical support and prevention measures.
- Graduates identify levels of development, learning potentials, barriers to learning, and learning progress.
- Graduates reflect on their own professional experiences and competences and their development and are able to anticipate the relative consequences.

The authors of the standards (= competence descriptors) apparently took care, that graduates can demonstrate their ability to accomplish these tasks. Whether they will actually apply these abilities in professional life remains open as no attempt has been made to include something like “adherence to professional ethics” into the criteria.

In Indonesia, the national teacher qualification and competence standards (Permen Diknas 16/2007) apply to teachers in primary, lower and upper secondary schools, including vocational schools. They list four competence areas, namely pedagogical, personal, social and professional competence, and are detailed in 24 standards comprising, in all, 71 indicators. Competences related to the respective teaching subject are listed separately for each teaching subject. Teaching subject related definitions are only available for general education subjects. Therefore, the competence definitions only apply to teachers in vocational schools teaching general education subjects, and not to those teaching vocational subjects.

The German as well as Indonesian teacher standards apply to teachers in general and do not address the specific competence requirements of vocational teachers. In Germany, pilot working groups are developing standards for vocational subject areas, initially for the mechanical engineering field (*Metalltechnik*) and the business and administration field. A first final draft for mechanical engineering has met with strong resistance from university-based vocational teacher educators, for in their opinion it does not promote the above-mentioned holistic acting competence approach with sufficient force (GTW 2012).

Furthermore, it is important to point to the discussion on the professionalization of teachers, directly related to the issue of competence (or competencies). In many countries, including those included in this study, TVET teacher education, as a rule, takes place at higher education institutions, i.e. universities, and is regarded as an academic profession, at least at Bachelor's level or even at Master's level as in Germany. Academic professions, which refer more to analysis, conceptualization and innovation tasks than to implementation issues, require a different set of competences to those of vocational occupations. One glimpse at existing qualification frameworks confirms this without having to dive too deep into education philosophies.

The European Qualifications Framework defines the required competence at level 6 (to which Bachelor's degrees are assigned) to “manag[ing] complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; tak[ing] responsibility for managing professional development of individuals and groups”. Level 7 (Master's degree) is defined as being able to “manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams” (European Parliament and the Council

2008). The main difference to previous levels occurs at level 6 with the responsibility for the professional development of others and the handling of unpredictable situations. At level 7 the difference lies in the inclusion of strategic innovation, for which “specialised problem-solving skills [are] required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields” (ibid.).

The Indonesian qualification framework (Perpres 8/2012), which has been adopted from the Australian qualification framework, assigns the Bachelor’s degree and therefore the teacher qualification to level 6 of the 9-level framework. Admittedly, the descriptor for level 6 is less demanding in terms of the mastery of theory for the purpose of procedural problem solving, being able to take the right decisions based on the analysis of information and data, and being able to assume responsibility for the achievements of the work of the organization.

A fair amount of TVET teachers’ work, however, especially in mainly school-based TVET systems, is practical, hands-on implementation of vocational education and training, which includes imparting practical skills to the students. Unlike many other professions, TVET teachers really have to be in command of the competences required for the lower levels of the qualification frameworks in their specific area of expertise. What this means in terms of TVET teachers’ competences will become evident in the following subsection.

2.3 Striving for holistic acting competence

As with any type of profession-related education and training, TVET teacher education and training should provide future teachers with all the necessary prerequisites that enable them to perform successfully in their profession, at least at the level of functional proficiency. In view of the importance of the behaviour of teachers in the development of a society and of the TVET teacher in the development of the economy, in addition to the demands placed on teachers in general, nonetheless, soon after entering service, they should be able to act at a level of “holistic shaping competence”.

It is well known, that true expertise in a profession relies on that person's own extensive work experiences in the actual profession concerned, often combined with the acquisition of substantial amounts of knowledge, which a pre-service teacher education and training programme will never be able to provide. Nevertheless it is advisable to have a look at the area of professional tasks a vocational teacher is expected to accomplish when “in the job”.

2.3.1 The job profile of a TVET teacher

As mentioned above, the German general teacher standards list 4 areas of learning and activity, namely

1. The school as an organization
2. Planning, implementation and evaluation of instruction
3. Assessment of students’ achievements
4. Cooperation among colleagues in the framework of instruction and school development
(KMK 2004a, own translation)

Regarding vocational teachers it is fair to add two more areas of activity, namely the development of education and training programmes and the planning, development and shaping of learning environments.

If we combine areas 1 and 2 to a field of action dubbed “participation in school development”, and assume that, according to the concept of “complete action”, planning, implementation and evaluation of

instruction also includes the evaluation of learning processes and the assessment of students' achievements (areas 2 and 3), once more we end up with 4 areas of activity:

- Planning, implementation and evaluation of vocational learning processes.
Shaping and evaluation of occupational learning processes including their individual assessment is, without doubt, the core duty area of vocational teachers. This also includes the vocational guidance and counselling of learners as the ultimate goal is to prepare students to begin a career of gainful work. Sound vocational-pedagogic capabilities, expertise in the occupational field and deep insight into as well as good connections to the world of work are required.
- Developing education and training programmes.
While curricula for general education subjects are usually determined at higher levels of the education administration, vocational education curricula are more open and subject to adaptation by the respective vocational school. The purpose here is to avoid gaps in terms of the qualification needs of the local labour markets and prevent backwardness rooted in the technological and organizational developments in the companies. Furthermore vocational schools increasingly have the opportunity to offer further education and training programmes outside initial education and training offers. The development of education and training programmes thus becomes a core duty of vocational teachers. This not only requires sound vocational-pedagogic capabilities, but also expertise in the occupational field and good connections to the world of work.
- Planning, developing and shaping of learning environments.
Spaces for practical learning like workshops, laboratories, combined practice and theory rooms, are of special didactical relevance in vocational education and training. Their quality is instrumental in determining the quality of the implementation of action-oriented learning. Setting up such learning environments with an appropriate experimental quality, that makes for involvement in and dealing with the world of work, is a quite specific challenge for vocational teachers. Due to limited school resources it might be necessary to extend such learning environments across the physical and organizational borders of the school (building). Following from there, cooperation with other entities such as other schools, training institutions, companies, or even universities comes into play, which in turn requires high expertise in the occupational field and an effective professional network.
- Participation in school development
Participation in quality development and quality assurance is one of the current tasks of vocational teachers. School development also means increasing its attractiveness for students and their parents. This means maximizing the job opportunities on the labour market for graduates by various means. Of these adapting education and training programmes to the needs of the labour market and close cooperation with companies are but two. Vocational schools are increasingly required to develop additional business fields where they have to offer further training or cooperation with companies in areas of production to become more competent and attractive. A development of vocational schools towards further education colleges or community colleges, i.e. vocational competence centres, is to be observed internationally that requires new forms of organizational development and a strengthening of the institutional identity.

Even though the German general teacher standards were used as a starting point for defining a job profile for vocational teachers, this job profile does not refer in any way to the specifics of the German vocational education and training system. By contrast it was created with largely school-based vocational education systems in mind, which are prevalent in the Asian countries of this study. However, only the

job profile for a “generic” vocational teacher is presented, which does not take into account possible function-related or hierarchical “division of labour” schemes that might exist in one or the other country.

2.3.2 A competence model for TVET teachers

Mainstream competence models, particularly in vocational education and training, typically start by naming competence domains such as specialized competence, personal competence and social competence (used by the German government), cognitive competence, functional competence, meta-competence and social competence (Le Deist and Winterton 2005, cited according to Guthrie, 2009), cognitive, technical, legal/ethical, organizational and the inter/intra-personal domain (Torr 2008, cited according to Guthrie, 2009) or other mappings. The Indonesian teacher standards name the domains of pedagogical, personal, social, and professional competence for teachers’ competences.

Even though such mappings might be useful for certain purposes like understanding the topology of human competence, structuring lists of competences, and even checking, whether education and/or training programmes sufficiently address all important domains of competence, they are usually not particularly suitable for the construction of education programmes or the assessment of students or professionals.

Why is this so? Using such a mapping of domains of competence for curriculum development or for competence assessment bears with it a risk in trying to develop or assess the competences assigned to the various domains independently from one another. In this setting the term “competency in one of the domains” inevitably bears the meaning of “one of the predispositions which are required to be able to act competently” and are supposed to add up to what one would call “competence”. Real competence, however, is not just the sum of competences, but the holistic integration of these competencies, much like a TVET teacher’s professional areas of activity cannot be separated from one another for an activity in one of the areas of activity immediately interlinks with activities in another area.

Therefore an alternative competence model for TVET teachers emerges, where the dimensions of action, the content dimension, and the competence scaling span a 3-dimensional space⁶ (see figure 1).

The dimension of action represents the steps or the parts of a “complete action” starting with planning, via selecting means and methods, implementation of the action including process supervision and control, and the final assessment of the results including analysis of the whole process.

The content dimension is given by the areas of activity already described in the job profile of a TVET teacher. All acting in this 2-dimensional space must follow the rules of two professional communities of practice, namely that of the professional practice of the occupational field and at the same time that of the vocational educators.

The competence scale displays the following 4 values.⁷

- nominal competence:
TVET teachers whose cognitive domain-specific disposition for performance lies below the level of the functional competence are urgently in need of additional education and training as this level can be also interpreted as “not at all competent with respect to the requirements”;

⁶ This model was presented in less detail at a conference in Makassar in Mai 2012 (see Dittrich 2012)

⁷ The scale is derived from the scale used in the KOMET competence model for occupational competence (Rauner et al. 2009)

- functional competence:
denotes basic vocational pedagogic and didactic, domain-specific technical and methodological knowledge, which can be applied but not yet adapted to special situations, featuring a lack of ability to justify and reflect on pedagogical acting;
- processual competence:
denotes the ability to apply professional knowledge in a manner appropriate to the situation, reflect its application, and shape and manage vocational education processes in real-world conditions. TVET teachers are part of their professional community of practice;
- holistic shaping competence:
denotes the ability to solve professional tasks in a holistic manner, taking into consideration the social compatibility of the teacher's work and the socio-cultural embedding of the vocational education processes, blended with the ability to act optimally when faced with contradictory requirements, e.g. considering curricula, resource usage, individual support of learners, etc., and familiarity with the relevant technological, pedagogical and didactic innovations.

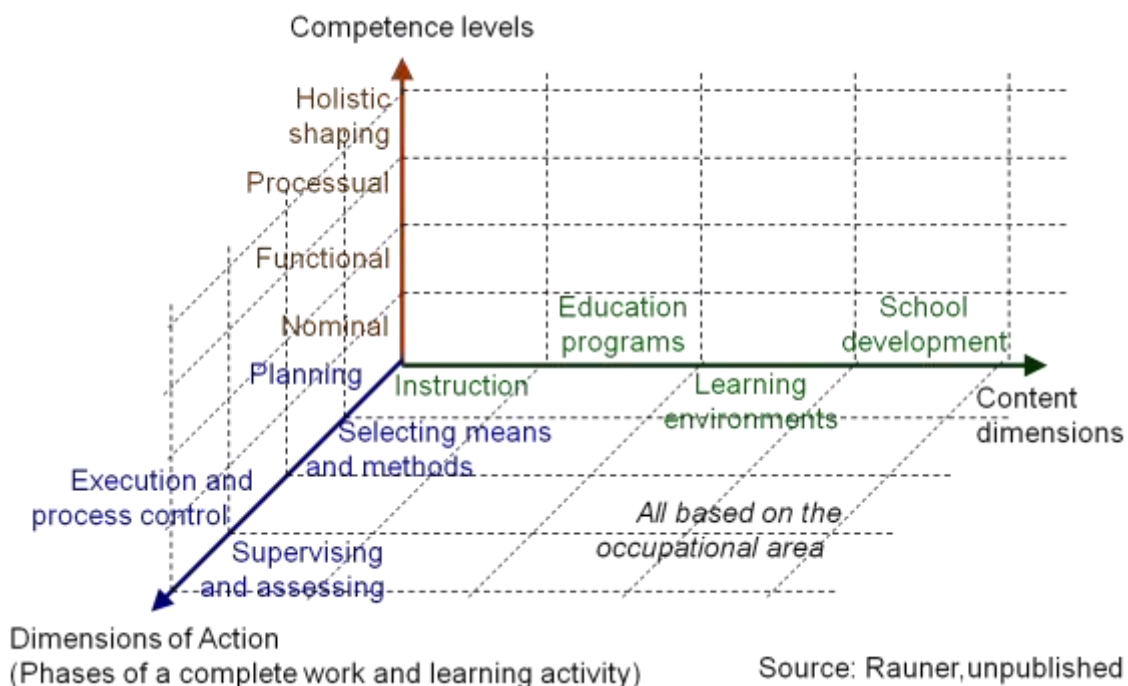


Figure 1: TVET teachers' competence model

It cannot be overemphasised that in all content dimensions, in addition to truly academic competences, required for the analysis, conceptualization and innovation work pedagogical competences, that are needed to connect findings to teaching expertise in the respective occupational field are indispensable. In theory this is confirmed by the fact, that competence and expertise are always related to a specific domain (Röben 2008). A competent geography teacher is not automatically competent as a teacher of automotive mechatronics. Furthermore, if a vocational teacher has to impart the knowledge, skills, attitudes, and work procedures to learners, and support the development of work process knowledge in students, it is vital to have expertise in the respective occupation (Fischer and Boreham 2008). It is not enough for a teacher to have theoretical knowledge; he/she must also have practical experience in the occupation and a command of all the unwritten rules and procedures of the respective occupational community of practice. Such experience and command is indispensable for being able to successfully cooperate with counterparts in companies on vocational education topics and the competence needs of

the workplace. Being able to communicate with professionals from the shop floor in their own language and competently discuss their own problems with them has proved to be an effective door-opener.

3 Methodology

3.1 Research approach and methodology

The field research carried out was based on qualitative methods. These methods were chosen for their exploratory character (see Flick, 1998, p 28). Qualitative methods are suitable for research subjects, that are as yet unexplored (ibid). Qualitative methods are extremely appropriate for pilot studies, to begin exploring the subject and prepare it for further study (see Mayring 2003, p. 28, in degree, 2003, p.41). In general, they are also used for problem areas that have not been adequately researched or ones in which only descriptive studies have been at hand (Bock, 1992, p. 90).

The methods comprise three fundamental techniques of data collecting: non-standard or semi-structured interviews, observations, and the non-reactive method (Bortz & Döring, 2002, p. 307). Two of the techniques are applied in the research:

1. Interview. This method is used to obtain descriptive information from stakeholders in PTP. The survey takes the form of semi-standardized, personal "face-to-face" and problem-centred interviews, organized both on an individual basis and in groups. For the individual interviews a guideline was used, whereas for group interviews, the group discussion technique was applied. Both interview methods have been conducted according to developed guidelines.
2. As a non-reactive method, content analysis is used. Content analysis involves analysing existing documents containing regulations, descriptions, and research findings related to TVET teacher training programmes.

The work is intended primarily to provide a descriptive representation on the issues and problems of the implementation of PTP among the partner countries involved in the project. The objective of this work is to gain a comparative description on the strengths and weaknesses of the respective PTP concept and its implementation, based on determined analysis criteria (see 3.3.). Derived from the objective the study does not try to measure quantitative significance of the data, but its relevance and usefulness.

3.2 Data sources

The data for this study were collected from two main sources:

- The first source is the literature, documents and articles that contain various information on the laws and regulations of PTP concept, curriculum, model, up to the implementation and development of PTP. The source provides an abundance of information for analysis and gives a rough insight on PTP.
- The second source is narrative information from PTP stakeholders. The stakeholders are representatives of governments, training institutions, vocational schools and companies. In interviewing them, the results derived from the document analyses were confronted and compared with their subjective opinions. Aside from the interview technique open discussion was also applied. The data collected provides a comparative view on the extent of the real implementation of the concept and regulation of PTP in the field.

3.3 Analysis framework

The results of the field research carried out by the partners in the respective partner country are bundled in country reports. Afterwards the reports collected are analyzed comparatively. Based on the common

discourse obtained from workshop discussion with all partner countries, the following components emerged as the analysis criteria:

- TVET philosophy
- Objective of PTP
- Policy and regulation (including the financing aspect)
- Curriculum structure
- Parties involved in PTP
- Assessment and evaluation
- Problems and difficulties

4 Post-study pre-service practical training programme (PTP) systems in Indonesia, Vietnam, China and Germany

The following chapter goes into more detail on the various practical training programmes for vocational teachers in Indonesia, Vietnam, China and Germany. The description provides more information on the system in the countries; including the TVET education system, PTP system, basic conditions of PTP programmes, curriculum, financing and the implementation of PTP. At the end of the chapter, the parameters of PTP in each country will be compared and analysed.

4.1 Indonesia

The Indonesia report begins with an introduction of the Indonesian education system, the vocational education system and the TVET teacher training system, followed by information on the rationale of teacher quality improvement and the related current policies. These descriptions will give some background information prior to discussing the types of practical training programmes for vocational teachers.

4.1.1 Introduction of the vocational education system and the TVET teacher education system in Indonesia

4.1.1.1 The Indonesian education system

In the Indonesian education system, compulsory education comprises primary education (*Sekolah Dasar* – *SD*, a 6 year period) and lower secondary education (*Sekolah Menengah Pertama*-*SMP*- a 3 year period). At upper secondary level, there are general upper secondary schools (*Sekolah Menengah Atas* - *SMA*) and vocational secondary schools (*Sekolah Menengah Kejuruan* - *SMK*), both for a 3 year period. Some SMK, so-called SMK Plus, run extended 4 year programmes leading to a Diploma-1 certificate. Faith-based Islamic schools exist at all levels with different appellation, such as *Madrasah Ibtidaiyah* (primary education), *Madrasah tsanawiyah* (lower secondary education), and *Madrasah aliyah* (upper secondary education).

Furthermore, in the national education system in Indonesia, education can be divided into two tracks i.e. academic education and professional education. Academic education organises educational programmes preparing students to develop their academic potential and continue their studies at a higher level of education. Professional education, which starts at the upper secondary level, provides students with the opportunity to improve their competence in certain areas of work-related expertise but is also intended to open the pathway to higher education. Professional education nonetheless sets out to provide an educated and skilled workforce for the economy.

Age	Grade	Level	Formal Education		Vocational Education				Non-formal Education
		Higher Education	Islamic S3 Program	Strata 3 Program	Specialist Program 2				Open University
			Islamic S2 Program	Strata 2 Program	Specialist Program 1				
			Islamic Strata 1 Program	Strata 1 Program	Diploma 4 Program				
22	16								
21	15								
20	14								
19	13								
18	12	Secondary Education	Islamic upp. Secondary School (MA)	General Upper Secondary School (SMA)			Vocational Secondary School (SMK)		Paket C
17	11								
16	10								
15	9	Basic Education	Islamic low. Secondary School (MT)	Lower Secondary School (SMP/SLTP)					Paket B
14	8								
13	7								
12	6		Islamic Primary School (MI)	Primary School (SD)					Paket A
11	5								
10	4								
9	3								
8	2	Pre-school Education	Islamic Pre-school	Kindergarten (TK)					
7	1								
6									
5									
4									

Remarks:

Strata 1, 2, 3 (S1, S2, S3) are equivalent to Bachelor, Master, Ph.D.

Specialist programs are programs for academic and/or professional further education

Basic education is compulsory and free of charge

Pre-school is optional

Source: [http://www.unevoc.unesco.org/tvetipedia.0.html?tx_drwiki_pi1\[keyword\]=Indonesia](http://www.unevoc.unesco.org/tvetipedia.0.html?tx_drwiki_pi1[keyword]=Indonesia)

Figure 2: Indonesia's education system

the national training system for work (*Sistem Pelatihan Kerja Nasional - Sislatkernas*), governed by the Manpower Act (Law No. 13/2003). In this text we will not take Sislatkernas into account and deal only with the vocational education system, as vocational teachers are educated purely for the latter.

In work-oriented education in Indonesia the term *pendidikan kejuruan* is used to denote vocational secondary education and *pendidikan vokasi* refers to vocational education in general, but largely to denote higher vocational education. Vocational secondary education prepares learners to work in a particular field, while higher vocational education prepares learners for jobs that require more sophisticated competences which at the upper end of the scale can be considered equivalent to what can be acquired in a graduate degree programme.

Vocational secondary education in general is formal education at the upper secondary level provided in vocational schools (*Sekolah Menengah Kejuruan – SMK*), but there are also non-formal offers, which are compelled to use the framework curricula provided by the Ministry of Education and Culture (MoEC). Higher vocational education, which is part of higher education, is taught in Polytechnics (*Politeknik*), High Schools (*Sekolah Tinggi*) and Academies (*Akademi*) and offers Diploma Programmes at the levels D2, D3, and D4. The number after the "D" denotes the length of study in years. Some universities also offer diploma programmes. In addition specialist or professional programmes are offered by universities for further training, usually for candidates holding at the least a bachelor degree. Again, in this text we refer only to vocational secondary education as up to the present there is no dedicated education of teachers for higher vocational education.

Vocational secondary education prioritises the development of students' abilities to perform certain types of work (*Peraturan Pemerintah* No. 29/1990). The purpose of vocational secondary education in Indonesia, however, is still ambiguous. On the one hand it prepares students to enter the workforce, on the other it enables them to continue their education to a higher level. As a result, graduates of vocational high schools are not entirely focused on learning for the world of work.

SMK offer programmes in seven occupational areas⁸ with currently approximately 130 specializations. Framework curricula released by MoEC define the volume of the different teaching subjects, including vocational basics, and the content of compulsory general education subjects. Approximately 25% of the curriculum volume is dedicated to specific vocational content. For vocational subjects, example framework curricula are available, which can be adapted to local conditions by the school commissions of each individual school. These school commissions can include representatives of the local private sector to assure curricula relevance to the local labour market. Most vocational education programmes include a company internship period of 3 to 6 months. However, for a number of reasons is often ineffective. At the end of the vocational education programme, graduates shall be given the opportunity to get their vocational competences certified against the national work competence standards (*Standar Kompetensi Kerja Nasional Indonesia – SKKNI*). At the moment this only takes place in a few cases due to a combination of factors such as the mismatch between school education and certification criteria, the fact that not all regions and vocational areas have a fully implemented certification infrastructure, or just simply due to the high costs of certification.

There are several changes underway in policies regarding vocational education to enhance the skills and expertise of human resources. These efforts, among others, include the change from a supply-driven system of education geared to public needs to a demand-driven education system geared to labour market needs and changes in the school-based education system permitting graduates to earn qualifications (competence certificates) that comply with national work competence standards.

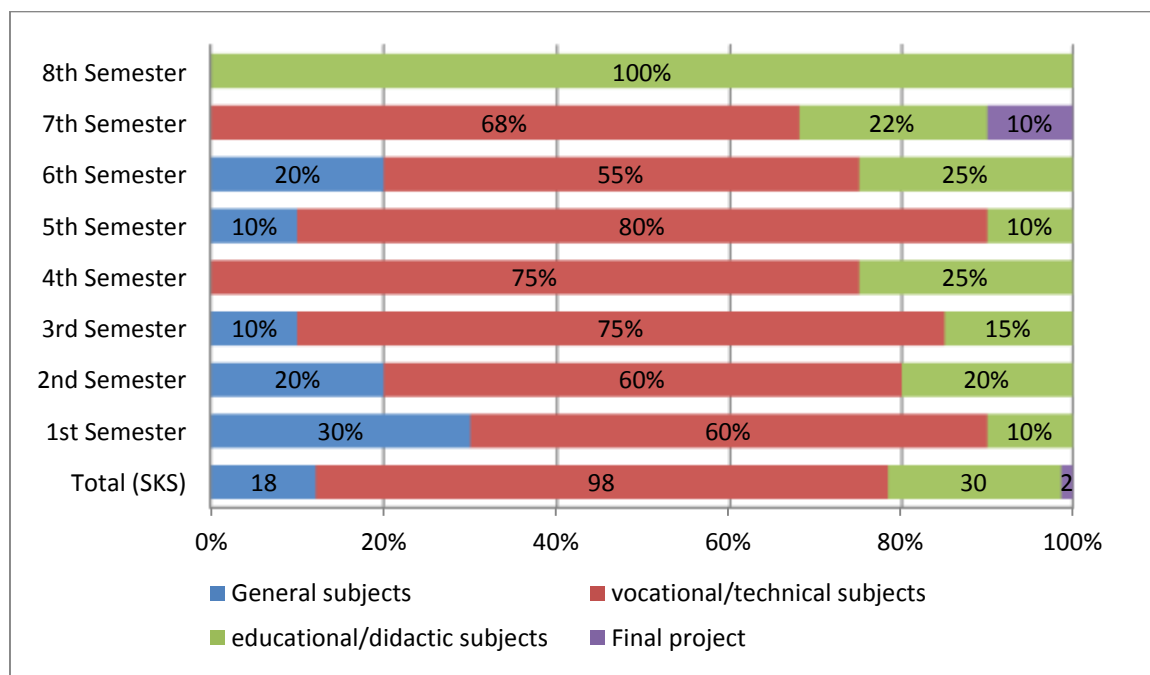
⁸ According to PERMEN DIKNAS 22/2006

A particular challenge for vocational education is the political goal for Indonesian upper secondary education to attain a ratio of 30% of General High School attendance (*Sekolah Menengah Atas – SMA*) and 70% Vocational Secondary School attendance (*Sekolah Menengah Kejuruan – SMK*) by 2025. This differs from the present distribution, in which 40% of upper secondary students attend vocational high school and 60% attend general secondary high school.

4.1.1.3 Vocational teacher education in Indonesia

Universities and colleges specifically designed for teacher education in Indonesia, are called *Lembaga Pendidik Tenaga Kependidikan* (LPTK). LPTK that provide vocational teacher education are called *Lembaga Pendidik Tenaga Kependidikan – Pendidikan Teknologi dan Kejuruan* (LPTK-PTK). All in all, 14 state universities or colleges provide TVET teacher education in different regions of Indonesia. A number of private universities also offer vocational teacher education programmes.

Vocational teacher education programmes in Indonesia generally consist of eight semesters, conclude with a Bachelor's degree, and are designed in so-called concurrent mode. This means that the teaching subject content is studied in parallel with the pedagogical content, which is also called integrated teacher education (Kustija, 2010). A typical distribution of general subjects, vocational subjects, didactic subjects over the semesters of the concurrent model is depicted in figure 3. There are no nationally unified vocational teacher education curricula available at the moment, so the content and distribution of study programmes varies from institution to institution. Study programmes, however, must be accredited by the competent accreditation agency.



SKS – Satuan Kredit Semester – Semester Credit Unit
(Source: Kustija, 2010)

Figure 4: The distribution of subjects in the teacher education curriculum (electrical engineering education)

4.1.2 The rationale, policy and concept for improving the quality of vocational teachers

4.1.2.1 The rationale

This section elaborates on the rationale of programmes for improving the quality of vocational teachers. Among them are teacher reform policy, a long-term strategy for teacher recruitment, national policy on the ratio between SMK and SMA, the statistics of in-service vocational teachers, and the necessity of additional training for vocational teachers to improve their competence.

The Teacher Reform Policy

The establishment of several policies regarding teachers/lecturers and the establishment of the Directorate General for Quality Improvement of Teachers illustrate the reform policy on teacher quality to improve education quality in Indonesia. Among these policies are the Law no. 4/2005 on teachers and lecturers (*UU No 4 Tahun 2005 tentang Guru dan Dosen*) and the Government Regulation 74/2008 on teachers (*PP 74 Tahun 2008 tentang Guru*). The establishment of the Directorate General for Quality Improvement of Teachers (*Direktorat Jenderal Peningkatan Mutu Pendidik dan Tenaga Kependidikan*) also demonstrates the government's intention to improve teacher quality.

According to these regulations, upper secondary education teachers must have a relevant bachelor degree (*Sarjana*) or a diploma IV certificate, that is considered the equivalent, plus a so-called teacher certificate. As there are still many in-service teachers in the system recruited prior to the implementation of the state policy, and as teacher certification was only recently taken up, a considerable number of teachers do not (yet) meet these two formal minimum requirements.

Two facts have to be made clear in this regard:

1. The teacher improvement policy applies to all teachers in the national education system. Regulations differ slightly between educational levels from primary up to higher education. Vocational teachers are defined as belonging to the group of upper secondary education teachers, and no separate or specific provisions for vocational teachers are in place.
2. The term “relevant” in the regulation refers to either a relevant teacher degree or diploma in the teaching subject or a degree or diploma in the relevant “pure” academic subject. Consequently, regarding holders of pure subject degrees only teacher certification can assure appropriate teaching competences.

The long term strategy for teacher recruitment

The following table sketches the long term strategy for teacher recruitment. The strategy includes the plan for improving the qualification of teachers, including in-service teachers and future teacher recruitment. Again, this applies to all, including vocational teachers.

Table 1: Long term strategy of teacher recruitment in Indonesia

Declaration			14/12/04												
Act No. 14/2005				15/12/05											
In-service Teacher Certification (2,7					15/12/06										15/12/15
Appointment of teachers from Guru Bantu															
Calculation of teacher needs															
Pendidikan Profesi Guru															
Retirement of existing teachers (300.000)															
Appointment of new teachers according to Act no 14/2005															
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		

Source: Kebijakan Pengembangan Profesi Guru, Ditjen Peningkatan Mutu Pendidik dan Tenaga Kependidikan, 2010.

The national education policy to make the ratio of SMK: SMA = 70:30

Based on the assumption that graduates of vocational education are more prepared to work and be absorbed into the labour market than graduates from general education upper secondary schools, a policy target to achieve a ratio of 70%:30% of vocational secondary education versus general secondary education by 2025 (DIKNAS 2007, 102) has been established.

Statistics of in-service vocational teachers in SMK

The quality of vocational teachers is affected by the educational background of the teachers. In the following table, data is given on the educational background of in-service vocational teachers for 2005 and 2009.

Based on the data regarding the educational background, there is a need to improve the formal qualifications of a relatively small number of in-service vocational teachers. In terms of pedagogical competences, however, a much larger competence development need must be assumed, as in the past many holders of pure subject degrees have been recruited as teachers. Reliable figures on this, however, could not be found.

Table 2: In service vocational teachers in Indonesia

Status	Teacher Academic Qualification														Number of Teachers	
	< Senior High School		Diploma 1		Diploma 2		Diploma 3		Strata 1		Strata 2		Strata 3			
	2005	2009	2005	2009	2005	2009	2005	2009	2005	2009	2005	2009	2005	2009	2005	2009
PNS	900	411	230	172	834	204	9,429	5,039	40,282	54,505	1,054	1,769	3	5	52,732	62,105
Non PNS	4,272	5,460	1,111	636	2,008	803	14,513	7,884	80,482	66,892	637	1,059	6	7	103,029	82,741
	5,172	5,871	1,341	808	2,842	1,007	23,942	12,923	120,764	121,397	1,691	2,828	9	12	155,761	144,846

PNS*: Teacher with civil servant status

Non PNS**: Teachers who are not civil servants (contract teachers)

Source: Ditjen PMPTK 2005 and 2009

The need for additional training of vocational teachers

Vocational students in SMK should learn all the things in vocational schools they need to know and be able to do later at their future workplaces. The knowledge and skills must be provided by TVET teachers. Hence, TVET teacher education has to provide the respective competences in one form or another.

A number of aspects of current initial vocational teacher education and past teacher recruitment imply a need for additional competence development of vocational teachers:

- The vocational subject matter in vocational teacher education programmes is mostly derived from “pure” related subject study programmes.

- The share of pedagogical and didactical studies is relatively small and the practical development of teaching competences is neglected.
- Holders of “pure” subject degrees or diplomas were often recruited directly after graduation. They often have little or no work experience in industry, and their pedagogic and didactic education is minimal.

Already out of these few aspects, three problem areas can be identified.

1. The primary objective of vocational education at upper secondary level is to educate future blue-collar workers, while “pure” subject study programmes at universities educate future white-collar workers. In the world of work there is a pronounced division of labour where, e.g. in the field of engineering, blue-collar workers do installation and maintenance work while white-collar workers are responsible for research, development and work organisation at higher levels of a company. The past and current teacher education and recruiting practices therefore imply a certain mismatch between teachers’ knowledge and vocational subject competence requirements. TVET teachers have to study other content than their academic counterparts in non-TVET-teacher education programmes (Dittrich, 2010).
2. Particularly those vocational teachers with a “pure” subject degree background lack sound theoretical pedagogic and didactic foundations. This even applies, though to a lesser extent, to vocational teachers who passed through the regular vocational teacher education programme. Given a combination of a high workload, (caused by having to take on a second job to provide additional income) and difficult access to up-to-date pedagogical and didactical literature, self-study is a challenging and often neglected activity.
3. Most of the teachers, with an educational degree or not, did not have extensive practical training in teaching. Practical teaching competences are largely acquired via “learning by doing”. Feedback during this learning process is usually weak for two reasons. First, there is no established practice of coaching by the school management or peer consulting between teacher colleagues. Second, due to cultural issues, students are usually not prepared to criticize their teacher. Therefore, impulses for self-development and innovation in teaching are scarce, and old and even inefficient teaching practices tend to persist.

Consequently, there is a need for additional training on topics, not yet provided in regular vocational teacher education. An additional or special practical training programme should be designed to meet the deficiencies. The practical training programme should enhance the quality of vocational teachers in terms of pedagogical, didactical and occupational skills. This practical training programme should be designed involving all parties and institution that have strong relation to vocational teacher production to avoid neglecting any important aspects.

Based on those rationales, i.e. the need for additional training of vocational teachers, the teacher reform policy and the national education policy on vocational secondary schools, the political actors have stipulated the implementation of a pre-service practical training programme for teachers, including vocational teachers, under the title “professional teacher training”, in the Indonesian language *Pendidikan Profesi Guru* (PPG).

4.1.2.2 Legal regulations

The introduction of professional teacher training or *Pendidikan Profesi Guru* (PPG) – which in this report is called the practical training programme (PTP) – is based on the following policies and regulations:

- Act No. 20/2003 on the National Education System, Section 2.
- Act No. 14/2005 on Teachers and Lecturers.
- Government Regulation No. 74/2008 regarding teachers.
- Regulation of the Minister of Education No. 16/2005 on Qualifications and Education Competence Standards.
- Regulation of the Minister of Education No. 16/2007 on Teachers' Academic Qualification and Competence Standards.
- Regulation of the Minister of Education No. 8/2009 on the *Programme PPG Pra-Jabatan*
- Regulation of the Minister of Education and Culture No. 9/2010 on the *Programme Pendidikan Profesi Guru Dalam Jabatan*.
- Regulation of the Minister of Education and Culture No. 5/2012 on the Certification of In-service Teachers
- Decree of the Minister of National Education Number. 018/P/2009 on the appointment of universities/colleges which have the authority to conduct the Professional Teacher Education Programme (*Penunjukan LPTK Penyelenggara Pendidikan Profesi Guru*).

These laws, regulations and decrees apply to teachers and lecturers in general, and little specific provisions for vocational teachers can be found. The content of these legal documents is not explained in detail here. The list is given for reference purposes only as the subsequent sections will refer to them.

4.1.2.3 The concept of improving teacher's competence through teacher certification

One initiative for improving the quality of Indonesian teachers has been the introduction of teacher certification. The certification scheme has been under development since the enactment of law 14/2005 on teachers and lecturers in 2005. Currently, teacher certification is technically implemented based on the Regulation of the Minister of Education and Culture No. 5/2012 on the Certification of in-service Teachers, and has replaced previous regulations.

Teacher certification was introduced for two main reasons (Jalal et al. 2009):

- to improve the competences of the teaching personnel significantly, and
- increase the teachers' salaries to reduce absenteeism and enable teachers to concentrate on their duties by eliminating the necessity of taking on extra work to make ends meet.

Initially rigorous testing of competences against teacher competence standards for various reasons could not be enforced immediately. Thus acquisition of teacher certification initially was made via portfolio assessment. The number of certificates issued per year was restricted to limit the increases in the annual national education budget which would have been intolerably high: teacher certificate holders gain entitlement to double the basic salary awarded to non-certificate holders. The portfolio approach proved ineffective regarding the real goal which is to improve teachers' competence. Indeed a black market in documents required for the portfolio assessment process emerged, meaning far less qualified teachers gained a certificate and all was turned into a scheme to raising teachers' salaries. However, ironically it contributed to an increase in the attractiveness of the teacher profession.

Over recent years politicians once again are concentrating on the quality development aspect, and have brought certification-related training schemes on the track. These include a training programme for teachers already in service under the title "PPG dalam jabatan", often also referred to as PLPG (*Pendidikan dan Latihan Profesi Guru* – professional education and training of teachers) and a training programme for teacher candidates, called "PPG prajabatan", mostly referred to as just PPG. For the sake of easier reading and compatibility to the other country chapters we will refer to PLPG as PTP-2 and to

PPG as PTP-3. PPG or PTP-3 is actually a true “Pre-Service Post-Study Practical Training Programme” taking place in the period between graduation from university or college and taking up employment as a teacher.

Figure 5 gives an overview of the developments over time. It must be noted, however, that the current situation is not as clear as it appears as the system is still in a migration process. The portfolio assessment has definitely been discontinued, and in-service teachers can earn a teacher certificate via participation in PTP-2, which is still restricted by quotas. Some groups of candidate teachers, as explained below, have to go through the tedium of attending PTP-3 before they can earn a certificate, and theoretically even before they can be employed as a teacher. But even for those groups it is doubtful, that the PTP-3 capacities are sufficient at this point so it is doubtful that all newly hired teachers have gone through this process. For other teacher candidates, including vocational teachers, PTP-3 is not yet on offer, so they will be employed without a certificate. The Ministry of Education is considering continuing hiring graduates from pure subject, non-educational study programmes particularly when recruiting teachers for vocational education subjects. They would be put through PTP-2 and thus earn a teacher certificate. Only few are of the opinion that this approach to acquiring pedagogic competences is sufficient.

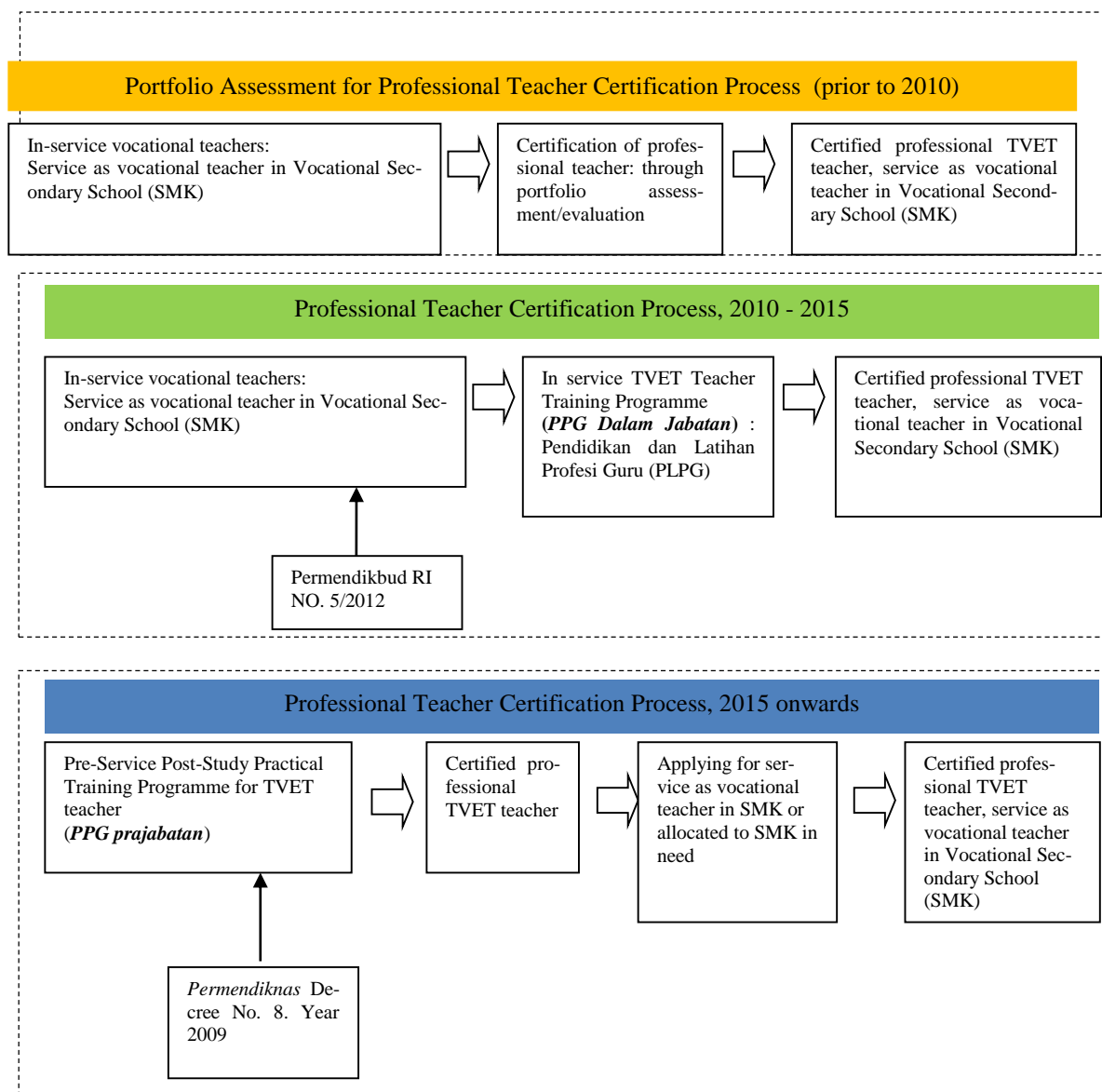


Figure 5: Professional teacher certification procedure

Thus, participating in a PTP-2 or PLPG programme currently is the main road for those teachers already working to becoming certified as a professional teacher. The professional teacher's certificate, as mentioned above, doubles the basic salary.

4.1.2.4 Motivation and goal

For teacher certification, attending a form of PPG has become a necessary prerequisite (see figure 5). However, the main goal of PPG is not merely to achieve certification. The teacher certification process is designed to produce professional teachers, and qualify the individual concerned with the teacher competency standards defined in the legal regulation (Permendiknas 16/2007). Accordingly, it is assumed that the certification will have a positive impact, i.e. increase the quality of teachers. Increased salary is the main incentive for in-service teachers when they improve their capacities by participating in the certification process.

Referring to the Law no. 20/2003 Article 3, *PPG* is a general-purpose programme designed to produce teacher candidates capable of realising the national education goal, which is to develop the potential of

students and have them become faithful and devoted to God the Almighty, noble, healthy, knowledgeable, skilled, creative, independent, democratic and responsible citizens. The objective of PPG is to produce teacher candidates who have competence in planning, implementing, and assessing learning, who follow up the assessment by coaching and training students; who are able to conduct research and develop sustainable professional skills. PTP-2 or *Pendidikan Profesi Guru* (PPG) is fundamentally intended to enhance in-service teachers' professionalism. PTP-3 for vocational school teachers aims at enhancing pedagogical competences as well as the future vocational teachers' occupational skills.

4.1.2.5 Achieving the vocational teacher competence standard

Concern regarding teacher competences has quite a tradition in Indonesia. In 1980, a Teacher Education Development Project (P3G) defined ten basic competencies a professional teacher should possess: (1) control of teaching materials, (2) managing the instructional programme, (3) managing the class, (4) managing the learning interaction, (5) using media, (6) assessing student learning outcomes, (7) implementing counselling and guidance, (8) carrying out educational administration, (9) mastering educational foundations, and (10) mastering the principles of research.

Teacher competency is defined in the Law of the Republic of Indonesia No. 14/2005 on Teachers and Lecturers, Chapter IV Part One: Qualifications, Competencies, and Certification as follows:

- a) Article 8: Teachers must have academic qualifications, competency, educator certification, be physically and spiritually healthy, and possess the ability to achieve national education goals.
- b) Article 9: Academic qualifications referred to in Article 8 are obtained through a higher education degree programme or a diploma four programme.

The description of teacher's competence is further elaborated in Regulation from Minister of National Education No. 16/2007 on teachers' academic qualifications and competence standards. The competencies include pedagogical competence, personality competence, social competence and professional competence. With regards to professional competence, the teacher must possess abilities in:

- Mastering the material, structure, concepts, and scientific mind-set that support the subject matter,
- Mastering the standards and competencies of basic subjects in the field of teaching,
- Developing teaching/learning materials creatively,
- Developing professionalism by reflective action in a sustainable manner, and
- Utilizing information and communication technologies to communicate and develop themselves.

For upper secondary teachers, including teachers at vocational schools, the regulation defines 24 competences for the 4 competence areas with all together 70 indicators. There are also some subject-specific competence definitions for general education subjects. Definitions specific to teachers of vocational subjects are not given. However, there have been some scientific discussions and research conducted about this issue during recent years. For instance, Wahyujatmiko (2012) points out, that professional development of teachers of vocational high schools (SMK) requires different management because it has special characteristics. According to Sonhaji Akhmad (2002), cited in Wahyujatmiko (2012), there are three main characteristics of technical (vocational) education that need to be considered in its implementation which are: (1) an emphasis on the psycho-motoric domain (2) in accordance with the development of technology, and (3) orientation to the world of work. One option for improving the vocational subject teachers' competence is the implementation of teacher professional development plans in accordance with the characteristics of vocational schools.

Wahyujatmiko's (2012) study result revealed that the psychological maturity and the skills and knowledge management abilities of SMK teachers significantly influences their professional development activities and they impact on the teachers' performance and the teachers' effectiveness in accomplishing their duties. Therefore, future SMK teachers are expected to have competence in terms of psychological maturity and skills/knowledge management.

Referring to the practical training programme and to the (in Indonesia not yet defined) SMK teacher competences, future vocational secondary school teachers should acquire the legally defined competences as well as specific competences needed in SMK during participation in the education/training programme, which has to be laid-out accordingly.

4.1.3 Types of Practical Training Programmes (PTP) for teachers

The various types of Practical Training Programmes (PTP) for vocational teachers in Indonesia are depicted in figure 6. There are three types of PTP in Indonesia, which are briefly described in the following.

PTP type 1 (PTP-1) takes place during the last semester of a university-based vocational teacher education programme. This type of practical training programme is called professional field practice (*Praktik Profesi Lapangan – PPL*). PTP-1 has already existed for several years in Indonesian vocational teacher education. In this scheme, the vocational teacher students are usually dispatched for a three months internship to a vocational school to practice their practical teaching skills in a realistic school environment. The cooperating schools are called partner vocational schools (*SMK mitra*) of LPTK-PTK. The scheme is listed here for the sake of completeness and will not be discussed further as it is an integral part of initial teacher education.

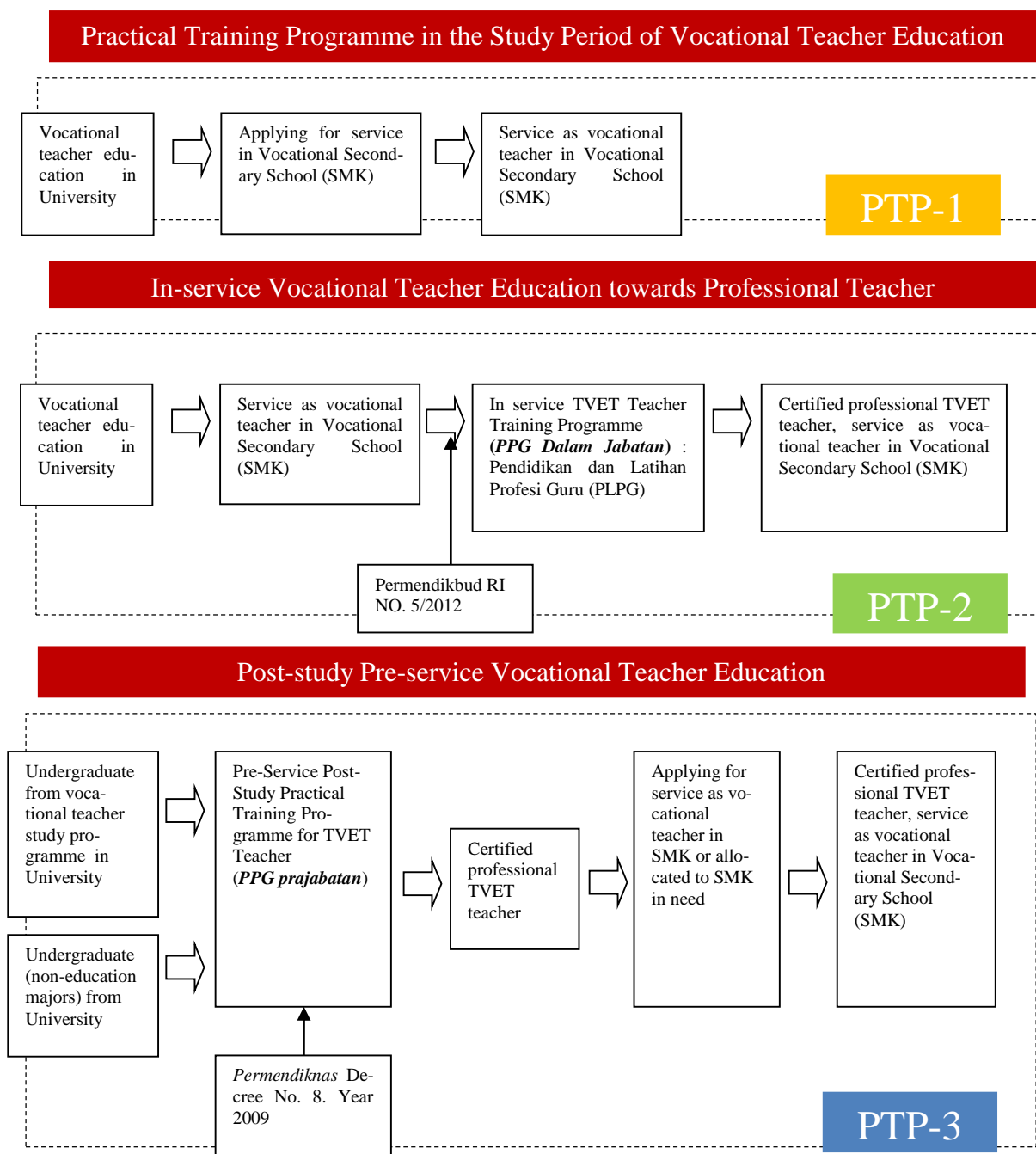


Figure 6: Vocational teacher education/training programmes

PTP-2 is a practical training programme conducted for in-service teachers, known as *Program Pendidikan Guru Dalam Jabatan (PPG Dalam Jabatan)*. PPG for in-service teachers is also widely known as *Pendidikan Latihan Profesi Guru (PLPG)*, and is currently implemented in various LPTK-PTK. PLPG is structured as 9 day full-time training. It is applicable to educators of all types and levels of educational institutions and aims at enhancing teachers' professionalism and improving the teachers' quality in all areas.

PTP-3 is the teacher-training programme in the form of post-study pre-service practical training. PTP-3 is being introduced as *PPG pra-jabatan* for future teachers with a duration of 2 semesters or one year. This concept is being implemented according to the Decree of the Minister of Education (*Permendiknas*)

No. 8/2009. Up to the present (July 2012), *PPG Pra-Jabatan* has not yet been implemented for future vocational education teachers. It has been implemented for the education of teachers at elementary school and teacher education in the field of mathematics and natural science. PTP-3 for the vocational education teacher is still in the conceptual phase in Indonesia.

In the following section *PPG Guru dalam jabatan (PLPG)*, here denoted as PTP-2, and *PPG Guru prajabatan* denoted as PTP-3 are discussed in more detail.

4.1.4 PTP-2

The Minister of Education and Culture (MoEC) has declared Professional Teacher Education (PPG/PTP-2) to be organized by higher education institutions or *Perguruan Tinggi* (PT). Individual universities submitted proposals to the MoEC via the MoEC's Directorate General of Higher Education (DGHE) to conduct the PTP-2 programme in their respective area of expertise. After an evaluation of the proposals, selected universities were commissioned to conduct PPG courses by means of a ministerial decree (*Kepmendiknas* 126/P/2010). The universities appointed are responsible for conducting the programme as part of their duty for a period of three years.

4.1.4.1 Parties and institutions involved

Quite a number of parties and institutions are involved in the organization and implementation of PTP-2. Most of them are within the scope of the MoEC's responsibility. Figure 7 illustrates the structure of the ministry and the sections involved. This figure will give us a better understanding of the hierarchical structures and how different entities collaborate in the PTP programme.

The parties and institution involved in organising PTP-2 are the following:

- Ministry of Education and Culture, Directorate General for Higher Education (DGHE/DIKTI), Directorate for Teachers and Education Personnel (*Direktorat Pendidik dan Tenaga Kependidikan/ P2TK*)⁹.
- Ministry of Education and Culture, Directorate General for Secondary Education (DIKMEN), *Direktorat P2TK*, Subdirectorate for Teachers and Educational Personnel for vocational high schools (*Subdirektorat Pendidik dan Tenaga Kependidikan Sekolah Menengah Kejuruan*).
- National Board for Human Resource Development Education and Culture - Education Quality Assurance (BPSDMP-PMP), Ministry of Education and Culture.
- Education Offices in each district/regency/region (*Dinas Pendidikan Kabupaten/Kota*)
- Institute for Education Quality Assurance (*Lembaga Penjaminan Mutu Pendidikan-LPMP*)
- Universities running PTP (*Lembaga Pendidikan Tenaga Kependidikan /LPTK-PTK*)
- Vocational high schools as partner of the PTP Programme (SMK mitra).

⁹ Refer to Regulation of the Minister of Education and Culture (Permendikbud) No. 01 Tahun 2012 on Organization and Administration of the Ministry of Education and Culture

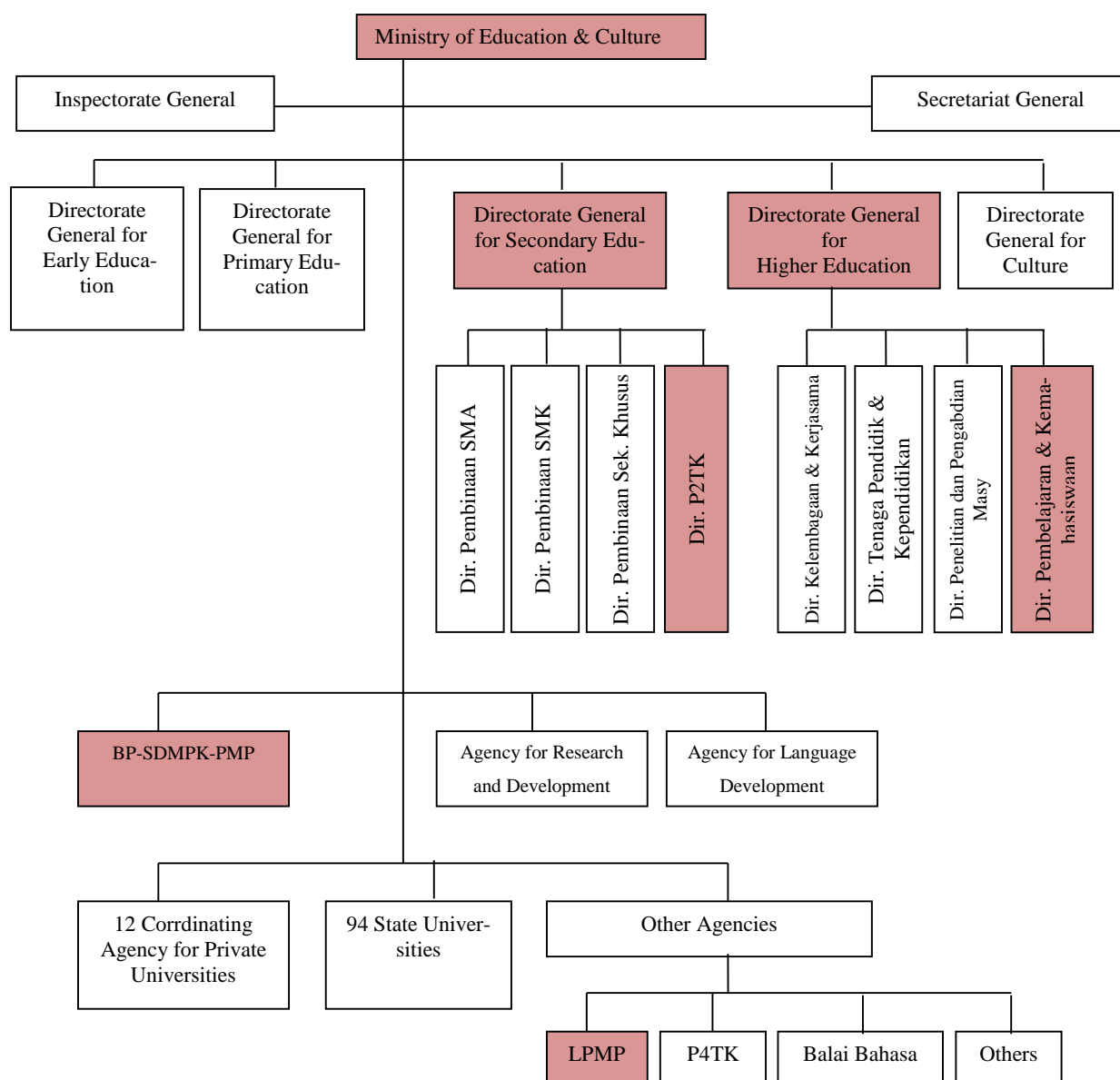


Figure 7: Entities under MoEC involved in the PTP-2 programme

There are three institutions within the Ministry of Education and Culture (*Kemdikbud*) that are involved in and coordinate vocational teacher education; the Directorate General for Higher Education (DIKTI), the Directorate General for Secondary Education (DIKMEN) and the National Board for Human Resource Development in Education and Culture - Education Quality Assurance (BPSDMP-PMP). DIKTI's Directorate of Teachers and Education Personnel (*Direktorat Pendidik dan Tenaga Kependidikan – Diktendik*) is responsible for the preparation of materials for the formulation of policies, guidance, development, provision of technical guidance, supervision, and evaluation for the education workforce¹⁰. In DIKMEN, the sub-directorate of Teachers and Education Personnel of Vocational High Schools has the task of carrying out the preparation of materials for the formulation and coordination of policy implementation, facilitating the application of technical standards, qualifications and careers for

¹⁰ Ibid.

the vocational teachers. BPSDMP-PMP as the third entity in *Kemdikbud* sets the quota for PTP-2 participants each fiscal year according to the availability of government funds.

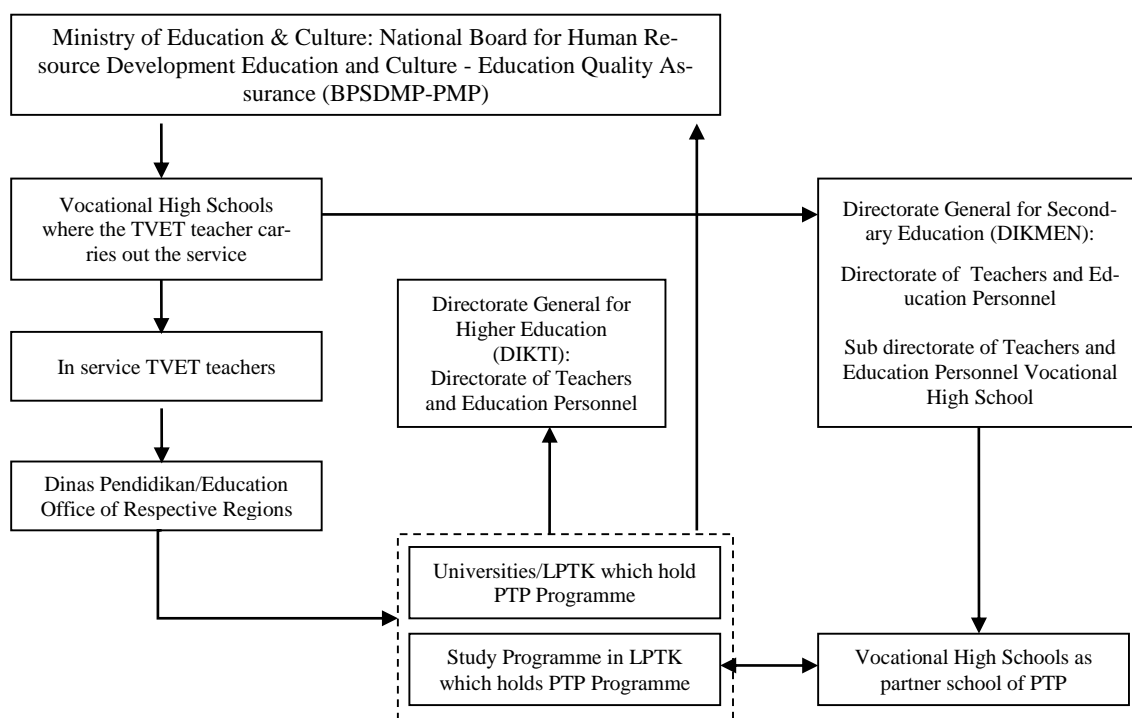


Figure 8: Process flowchart of parties and institutions involved in PTP-2

Provincial education offices (*Dinas Pendidikan Provinsi*) and regional education offices in regencies and cities (*Dinas Pendidikan Kabupaten/Kota*) keep records on the formal qualification of teachers in their respective regions, including their certification status. The provincial education offices and the institutes for education quality assurance (*Lembaga Penjaminan Mutu Pendidikan – LPMP*) publish information on the PPG programme in a specific fiscal year and forward it to the regional education offices. The vocational high schools propose a list of their teachers who meet the requirements for participation in PTP-2 to their regional education office which carries out the administrative selection of candidates for PTP-2. Teachers at the same time apply to the education office for participation in a PTP-2 programme. The regional education offices do a desk-evaluation of the potential candidates and forward the results to the provincial education office. Province education offices in coordination with LPMP carry out the final administrative selection and send a list of eligible participants to the LPTK which hold the PTP-2 programme.

LPTK-PTK play an educational and an administrative role. They carry out the academic selection of PTP-2 participants and send the lists of selected participants to the Directorate General of Higher Education, to the provincial and regional education offices and to BPSDMP&PMP. In their educational role, LPTK-PTK conduct the training programmes with reference to published guidelines, do the assessment of participants, and finally provide the certificates of completion. Upon completion of the respective training programme, LPTK-PTK submit the list of successful PTP-2 graduates to the Directorate General of Higher Education and BPSDMP&PMP with a copy to the provincial and regional education offices. Finally, a report on the implementation of the PTP-2 programme has to be submitted to the Directorate General of Higher Education and to BPSDMP&PMP periodically.

Inside *LPTK-PTK*, the university's Directorate of Academic Affairs, the faculty concerned and the responsible department/study programme are involved in coordination and implementation of the programme.

The main duties of the Directorate of Academic Affairs (Professional Education and Services Division of Professionalism/ *Divisi Pendidikan Profesi dan Jasa Keprofesian*) are:

- Develop the PPG regulation at the university level
- Coordinate the selection of candidates
- Carry out academic administration at university level
- Coordinate with partner schools to get their support, especially in the administration of the school-practical part of the programme
- Monitor and review the preparedness of the department/study programme to conduct the programme
- Develop the guidelines for supervision and evaluation of the teaching practice period (PLP)
- Coordinate the activities as well as monitoring and evaluation in PLP in partner schools
- Identify and select the faculty members to be involved in the PTP programme
- Conduct the matriculation process
- Provide competence certification.

The faculty coordinates the implementation of PTP in its study programmes. Study programmes in *LPTK-PTK* hold the PTP programme, carry out the teaching and the assessments.

SMK also have a role in providing the venue of participants' teaching practice period. In SMK *guru pamong* (teacher teachers) supervise the PLP period of the PTP-2 participants.

4.1.4.2 Requirements to be met by PTP providers

Higher education institutions in Indonesia usually have a relatively hierarchical structure. Important decision-making, quality assurance and financial administration are in the hands of the university level management. Below the university management are the faculties and special units, like postgraduate studies, research centres, and other directorates. The faculty management oversees teaching area specific departments, under which study programmes are located. Each of the mentioned units has its own administrative and hierarchical structures.

The responsibility for the operational implementation of PTP-2 lies with the departments and study programmes. To be eligible for a PTP-2, a department or study programme has to meet certain requirements. Firstly, the institution must conduct an undergraduate degree programme in a field similar to that of the PTP-2 programme. Secondly, it must be accredited by the National Accreditation Board for Higher Education (*Badan Akreditasi Nasional/BAN-PT*). The minimum requirement is level B¹¹. To qualify for "B" accreditation, the facility should have adequate teaching infrastructures, an adequate quantity of qualified lecturers and other non-academic aspects that assist in creating the academic atmosphere. If an institution is awarded accreditation "B", it is considered that it delivers good-quality academic programmes. Thirdly, the study programme must possess a network of programmes and partnerships with partner schools for the implementation of the Professional Training Programme (PLP).

¹¹ Accreditation of educational institutions against education standards was implemented some years ago as a measure to assure a certain quality. There are three accreditation scores, namely A, B, C, the score A denoting the highest quality. Not all education institutions are accredited yet, and some even fail to score a C.

Vocational high schools must also attain accreditation level “B” to be eligible to participate as PPL partner school in the implementation of PTP-2. In addition, there should be a memorandum of understanding between the vocational high school and the LPTK (confirmed by the competent regional education office) as a contractual basis for the joint implementation of PPL.

4.1.4.3 Human Resources for carrying out the PTP programme

The requirements regarding lecturer’s qualifications are similar for holding PTP-2 and PTP-3. The particular study programme must have at least two qualified PhD (S3) personnel who serve as assistant professors and a minimum of four lecturers with Master degree (S2) and an educational background relevant to the PTP programme to be carried out. The study programme must have the capacity to develop the curriculum and the syllabus for PTP referring to the Professional Teacher Competency Map defined in the Government Decree number 74 of 2008.

Lecturers acting as supervisors for teaching practice at school (*Dosen Pembimbing Lapangan*) must have at least a master (S2) degree as well as the educator certificate and have passed a training in field teaching practice for lecturers, and have served as a lecturer at the academic level (*jabatan fungsional*) for a minimum of five years. They are responsible for all teaching practice related activities in the PTP programme. They are responsible for the guidance and assessment of participants in subject specific pedagogy, peer teaching, microteaching, and implementation of teaching practice at school as well as conducting the competency test.

Teacher instructors in Vocational High School (*Guru Pamong*) must have at least a bachelor (S1) degree in a relevant subject area, and have passed teacher certification and worked as a teacher for a minimum of five years. The lecturer must show great commitment, usually demonstrated by a willingness to take on the role of a supervisor.

4.1.4.4 Curriculum of the PTP-2 programme

Government Regulation No. 19/2005 on the National Education Standard assigns the responsibility for developing the basic framework and structure of higher education curricula to the departments/study programmes. The Minister of Education Regulation 9/2010 (*Permendiknas 9/2010*) regulates the PTP-2 programme. According to article 5 the curriculum must contain subject specific pedagogy and teaching practice.

Subject specific pedagogy workshops are intended to improve participants’ abilities in developing learning arrangements and the respective learning equipment (instructional materials, learning media, evaluation procedures, etc.), while teaching practice exercises aim at improving participants’ practical capabilities in developing and handling teaching situations, which includes planning and implementation of instruction, assessing learning outcomes, follow-up assessment, as well as coaching.

Each study programme holding Professional Teacher Education should coordinate curriculum development with the Directorate General of Higher Education. The obligation to coordinate assures a certain standardization and quality of the PTP curricula across Indonesia, intended to level out deficiencies in initial vocational teacher education.

According to the above mentioned regulation (article 10), PTP-2 for vocational teachers should have a volume of between 36 and 40 credits, which is the equivalent of an entire year of full-time study. This article also states that the distribution of credits within the curriculum and between teaching subjects is determined by the LPTK carrying out the programme. In reality, however, PTP-2 training duration is

just 9 or 10 days. No further explanation is to be found regarding this difference between regulation and implementation.

4.1.4.5 Organization and timing

PTP-2 can be organized as block teaching and non-block teaching as there are no regulatory definitions on this issue. This applies to both elements, subject specific pedagogy workshops on developing learning equipment (instructional materials, learning media, evaluation procedures, etc.) and teaching practice. These activities are conducted under direct monitoring of lecturers specifically assigned to these activities.

Learning and teaching in both PTP-2 and PTP-3 shall be action oriented. Participants must attend the workshop for developing teaching materials and the modules on subject specific pedagogy. Most of the learning takes place in the classroom based on a standardized curriculum and lesson plan set by the university/study programme which carries out the PTP programme.

During the course, students should obtain hands-on practical experience. The practical classes are held in a microteaching room equipped with the necessary facilities. Participants also have to implement a learning unit at a vocational school for the purpose of experiencing different types, organisation and management of classes. During teaching practice the participants are coached by senior vocational teachers (*guru pamong*) as well as by specifically assigned university lecturers (*dosen pembimbing PPL*), who advise them on preparation and feedback after completion of the lessons.

4.1.4.6 Participants of PTP-2

The target group of PTP-2 are in-service teachers preparing for teacher certification. Their participation is subject to the administrative procedures set by the school and the government. The LPTK-PTK does not have the authority to decide on the number of PTP-2 participants in their institution. The quota for participants in PTP-2 for the years 2010, 2011 and 2012 was set by the MoEC, and published in the annex of *Keputusan Menteri 126/P/10*. The quota was 13,020 participants per year, sorted according to subject backgrounds, and distributed to a number of LPTK-PTK. The number of participants is limited to 30 persons per class. According to the political target, all in-service teachers should obtain the professional teaching certificate by 2015.

4.1.4.7 PTP-2 Recruitment Procedure

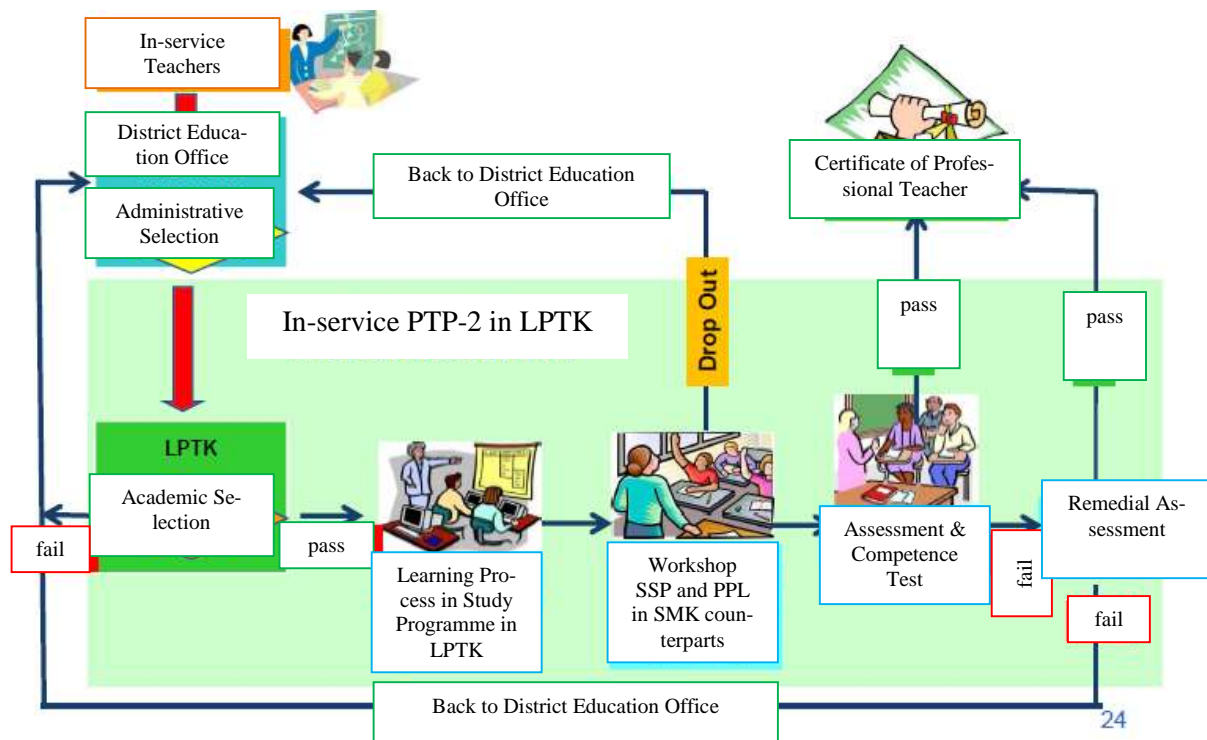
The admission of PTP-2 participants is carried out in collaboration with the education offices in the particular area. The education offices have statistical information on in-service teachers, e.g. on the number of teaching certificate holders, the need for quality improvement of teachers, and the PTP-2 quota set by the government. According to the regulation, the admissions process must be fair, open and accountable.

The steps for enrolment of PTP-2 programme are:

- The National Board for Human Resource Development in Education and Culture – Education Quality Assurance (*Badan Pengembangan Sumber Daya Manusia Pendidikan dan Kebudayaan – Penjaminan Mutu Pendidikan*, BPSDMP-PMP) sets a quota of participants.
- BPSDMP&PMP and the Directorate General of Higher Education publish information regarding PPG implementation for the upcoming fiscal year. This information is forwarded to the provincial education offices, LPMP, education offices at district/ city level, and LPTK.
- Provincial and district/city education offices forward the information to schools.

- Schools do a desk evaluation of their teachers regarding administrative criteria, and the school principals appoint a list of teachers to participate in PTP-2.
- Participants have to register online with provincial and district/city education offices. The completed online form is printed out and forwarded to the school principle.
- The form, approved by the school principal, is sent to the district education office along with supporting documents.
- District education offices forward the documents to the provincial education office.
- The provincial education offices select the candidates based on the documents.
- Selected candidates receive a notification of admission online, which they submit to an LPTK along with additional documents.
- LPTK verify the documents and organise a test for selecting the candidates according to academic criteria.
- LPTK publish the selection results on their websites (online) and in addition send them to the Directorate General of Higher Education and BPSDMP-PMP.
- Participants finally admitted to PTP-2 are assigned a student identification number (NPM) by the relevant LPTK.
- The list of candidates who passed the test and got the NPM is forwarded to the Director General of Higher Education and BPSDMP-PMP.

The PTP-2 recruitment procedure is illustrated in figure 9.



Source: Directorate General of Higher Education (*Dirjen DIKT*): *Sosialisasi Programme PPG 2010*.

Figure 9: PTP-2 recruitment procedure

4.1.4.8 Assessment and graduation of PTP-2

Participants' performance in the PTP-2 training programme is assessed according to a number of criteria; which are their participation in the theory class, the workshop, the quality of the action research proposal, quality of the prepared syllabus/teaching plan and teaching materials, the result of the teaching process and teaching practice (PPL assessment) and their social/personal competence.

Participation in the theory class

The participants are expected to attend all theory classes, be involved in the learning process and actively engage in classroom discussions.

Workshop assessment

The marks given for the workshop represents the performance in the workshop, combined with the scores given by the mentors and those given by the participants peer-group. Assessment in the workshop is practice-oriented. Participants are assessed according to their actual teaching performance in a *micro teaching test*, in which the mentor and other teachers of the vocational school are invited to attend, evaluate the performance and give suggestions for further improvement. A *peer-teaching* test is also given, focussing on the whole teaching competence.

The teaching materials (teaching scenario, learning media, and teaching evaluation sheet) and syllabus developed during the workshop are also assessed by the mentors. This product assessment takes into consideration participants' mastery of learning theory, learning strategies, comprehension of the students/learning participants, planning and evaluation capabilities.

Evaluation of action research proposal

Each participant has to design an action research proposal (*Penelitian Tindakan Kelas*) in an area of interest that she/he would like to carry out in her/his classroom. During this PTP-2, the proposal for classroom action research is submitted and its quality evaluated by the trainers. The evaluation result is entered and makes up one of the elements in the overall assessment.

PPL assessment

The participants are assessed according to their actual performance in teaching practice (*Praktik Profesi Lapangan* – PPL) at vocational school. This usually takes the form of a micro teaching test, in which the mentor and other teachers in the vocational schools are invited to attend and assess the performance and give the participants an evaluation and suggestions for further improvement. The PTP participants must also hand in different kinds of reports concerning the preparation of teaching materials and reports on the PPL process.

Competence assessment

After successfully passing the workshop and the teaching practice assessment, participants have to sit a written competence test, which has been developed based on the standards of teachers' competence (Decree No. 16 in 2007). The competency test is conducted by the LPTK/study programme which runs the PTP.

The final mark is calculated as a weighted arithmetic mean using a weight of 30% for the workshop mark, 40% for teaching practice mark and 30% for the competence assessment mark.

A number of different assessors are involved in the assessment procedures. The written examination is conducted by the study programme organizers, while the performance test is conducted by the study programme with the involvement of professional organizations and/or external parties and relevant professionals.

Certification authority

Participants who pass the programme successfully are awarded a certificate by the LPTK which organizes the PTP programme.

4.1.4.9 Expected outcome of PTP-2

PTP-2 is expected to improve the quality of in-service teachers. According to political targets, all in-service teachers must be certified and possess an educator's certificate by 2015. It is postulated that teacher certification will improve teachers' competences and improve the quality of education as a consequence. However, the short period of training (10 days) is clearly not sufficient to improve the competence of in-service teachers significantly.

4.1.4.10 Financing of PTP-2

PTP-2 is financed directly by the central government via the Ministry of Education and Culture. PTP-2 funds are usually transferred, mid-year to the LPTK accounts assigned to offer PTP. Once the funds are transferred, LPTK begin implementing the programme. Depending on the quota assigned to an individual LPTK in a specific subject area, a number of batches will be run per year.

4.1.5 PTP-3

Again it should be mentioned, that up to now, *Pendidikan Profesi Guru Prajabatan* (PTP-3) is implemented only for teachers for primary schools and natural science teachers with a focus on general education schools. The information given below mainly applies to candidate teachers of the mentioned groups, except when information is based on regulations that apply to all future teachers, including vocational teachers, and where express reference is made to vocational teachers or vocational schools.

4.1.5.1 Parties and Institutions Involved

Parties and institutions involved in PTP-3 are Dirjen DIKTI (Directorate General of Higher Education), LPTK, study programmes, and schools as the venues of teaching practice. The role of those parties is almost the same as their roles in the PTP-2 programme, but the role of the regional education offices is not as significant as in PTP-2. Figure 10 illustrates this situation.

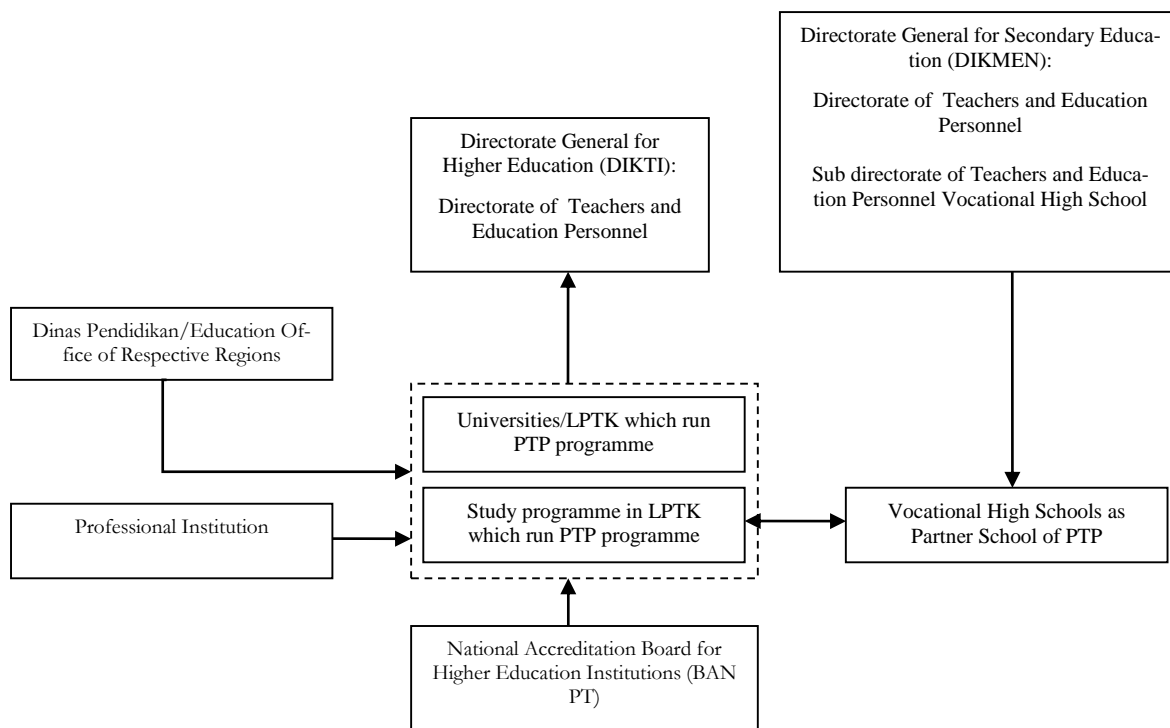


Figure 10: Parties and institutions involved in PTP-3

4.1.5.2 Requirements to be met by PTP providers

The formal requirements for institutions running PTP-3 are identical to those for PTP-2 implementing institutions. The institution must run an undergraduate degree in the respective subject area. The departments/study programmes of LPTK running PTP-3 must be accredited by the National Accreditation Board for Higher Education (BAN-PT) at least at level B. The same applies for partner schools. Accreditation level B assures, that the required technical infrastructure is available at both types of institutions, that the staff at the implementing unit meets the formal competence requirements, and that the cooperation network between LPTK and schools exists. The details are depicted in section 4.1.4.2.

4.1.5.3 Human Resources for running the PTP programme

Here again the same requirements apply as for PTP-2. Units running PTP-3 must be appropriately staffed with at least 2 PhD and 4 Master degree holders with a relevant background, lecturers with Master degree with a qualification in teaching practice, and partner schools must be able to provide appropriately qualified and experienced teachers as practice coaches. For the details see section 4.1.4.3.

4.1.5.4 PTP-3 Curriculum

Participants of PTP-3 can be both, graduates from teacher education study programmes or graduates from non-educational majors. Therefore, there are two different curricula for the two groups.

In both cases PTP-3 covers 2 semesters (or one year) of full-time study, equivalent to a volume of 36-40 SKS (credits). This applies to PTP-3 programmes for all prospective teachers in upper secondary education.

For graduates of teacher education programmes the curriculum contains two modules; the subject-specific pedagogy and didactics in the teaching subject and teaching practice. For graduates of non-educational majors (Bachelor (S1) degree and Diploma-IV certificate holders), the curriculum contains an

additional module on educational theories and their application. This latter module covers theories of education, theories of learning, preparation of learning materials for the field of study including subject-specific pedagogy and didactics, and development of teacher personality.

In terms of the competence development of future vocational teachers it would be helpful to have exposure to occupational practice in the respective industrial field included in PTP-3, at least for those without relevant experiences in the world of work. As up to the present there is no specific concept, let alone a specific regulation for PTP-3 for vocational teachers, no credits are allocated for exposure to and experience of work practice. Practical experiences, even with the future introduction of PTP-3, are still restricted to short and invariably poorly-managed industrial internships during the study programme and simulated practice in university and school laboratories and workshops.

4.1.5.5 Learning Organization of PTP-3 Programme

As PTP-3 for vocational teacher education is still in the conceptual phase not much can be said about the detailed organisation of the programme. A block-mode and a non-block-mode setting (see figure 11) is highly likely.

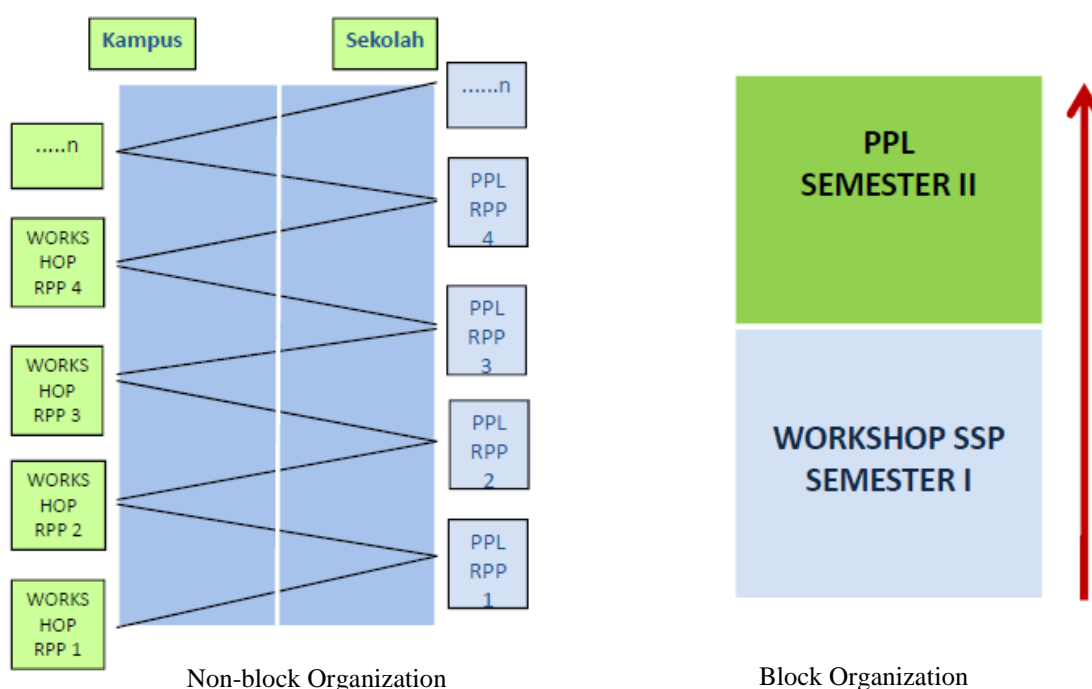


Figure 11: Learning organization

PTP-3 is to be action oriented. Programme delivery will be based on a standardized curriculum, developed by the respective university/study programme and approved by the Ministry of Education and Culture. Roughly half of the programme will be classroom-based and take place at university, the other half in vocational schools. Practice elements will be planning of instruction and its implementation in microteaching and peer-teaching settings in classrooms, laboratories and workshops at university, as well as exposure to teaching duties in vocational schools.

4.1.5.6 Participants of PTP-3

The target groups of PTP-3 are the graduates from undergraduate (Bachelor/S1) and Diploma IV, who aspire to be vocational teachers in a vocational high school. The possible academic qualifications of candidates for PTP-3 are:

- Undergraduates from teacher education programmes in the same vocational discipline for which the professional teacher education programme is run;
- Undergraduates from teacher education programmes of another vocational discipline than for which the professional teacher education programme is run. They will have to enrol in a matriculation/bridging programme in advance.
- Undergraduates from relevant non-education majors (S1/D4). They will also have to enrol in a matriculation programme focusing on pedagogical knowledge and skills.

4.1.5.7 Recruitment Procedures of PTP-3 Participants

The enrolment procedure for PTP-3 is illustrated in figure 12 and includes the following steps.

- Administrative selection
- Test related to subjects.
- Test of academic potential.
- English language proficiency test (English for academic purposes).
- Interviews and observation.

The procedure involves the Directorate General of Higher Education, province and district level education offices, LPTK, and other relevant stakeholders. The education offices have the information regarding the need for qualified teacher in their respective areas. They have to provide this information on vacancies, for it to be made available to prospective participants.

Capacity planning of PTP-3 and acceptance of participants is governed by supply and demand. Each participant will have a workplace as an educator in the school after graduation from the programme¹² and will be deployed according to his/her occupational field background and the needs of the schools. It is anticipated that this will encourage qualified candidates to apply for enrolment in the PTP-3 programme. The programme selection procedure is to ensure that participants have the required motivation and intellectual capacities to become a teacher.

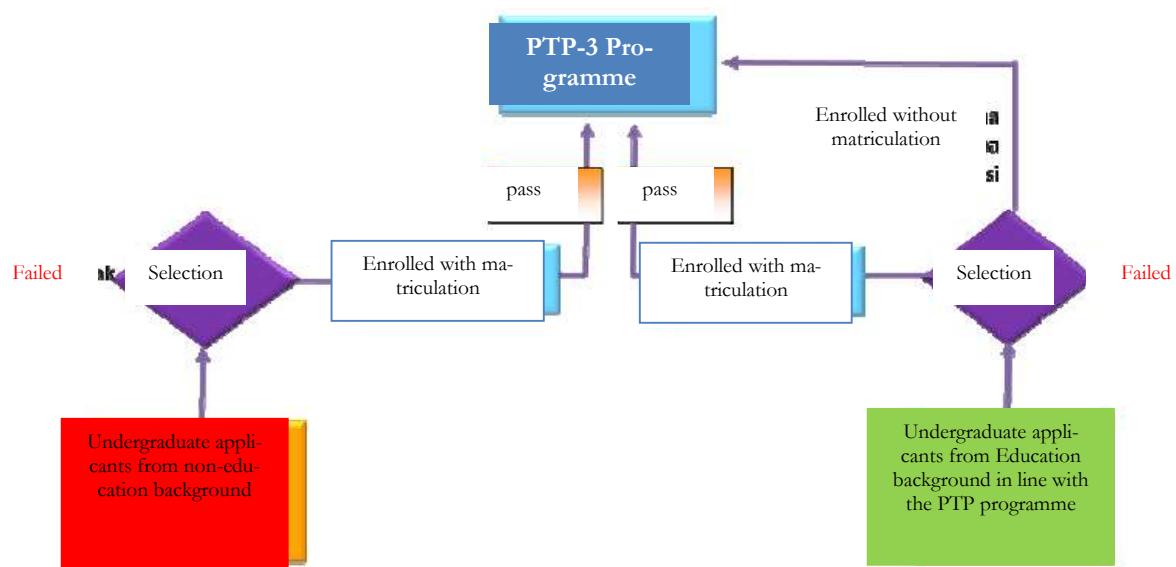


Figure 12: Recruitment Procedure of PTP-3

¹² See DIKTI (2008). Naskah Akademik Pendidikan Profesi Guru Prajabatan.

Graduates from non-teacher education undergraduate or Diploma IV programme and from teacher education programmes with a subject area different to the PTP-3 programme must go through a so-called matriculation programme prior to participating in PTP-3. The curriculum of a specific matriculation programme, which should be seen as a bridging programme to level out knowledge and competence deficiencies, is developed by the LPTK as PTP-3 organizer. PTP-3 applicants who fail the matriculation programme cannot proceed to PTP-3.

PTP-3 for vocational teachers has not been implemented yet, hence there is no data on the number of participant.

4.1.5.8 Expected outcomes of PTP-3

There are no outcomes of PTP-3 for TVET teachers available yet. However, the interviews with the stakeholders gave some indications, what outcomes can be expected for the future, such as improvement of competences, improvement of career and remuneration, and a more appropriate utilization of graduates.

The expectation is that the programme graduates will meet the teacher competence requirements as defined by the regulation in the social, pedagogical, and academic areas. Successful participants in PTP-3 will receive the educator's certificate and will not be required to go through an additional teacher certification process. Their certificate will permit them to work immediately as a professional teacher at the school.

The general expectation is that PTP-3 will substantially contribute to the integration of future new teachers in a teaching job. The PTP-3 participants are expected to gain basic impressions and knowledge of vocational schools, develop an understanding of the schools' organizational structures, how the school works, improve their teaching skills and abilities to manage a class, and be more familiar to interaction with the students. All in all, the graduates are expected to already be in possession of the competences needed to serve as a competent vocational teacher upon taking up employment.

Universities/institutes/LPTK's role is just to educate vocational teacher candidates and they are not involved in placing teachers in the vocational school job market or coaching them once they are in service. The Directorate for Vocational Schools of MoEC is engaged in teachers' placement and coaching, but is not involved in shaping the curriculum according to the needs of vocational schools (SMK). Thus far there is no visible (or formal) co-operation between LPTK-PTK and the directorate in this regard. LPTK-PTK provide education to future teacher candidates, but are not in the position to support them in finding employment. Even capacity management for initial teacher education programmes is not aligned with staff capacity planning for SMK. The mechanisms for coordinating the supply and demand of vocational teachers are still in need of improvement. Despite the above mentioned "job guarantee" stakeholders have stated their concern, that for appropriate and efficient planning and provision of capacities reliable information is needed on the quantity of vocational teachers needed, the sought-after areas of expertise and the locations (regions) where vacancies exist. If this is provided, after participating in the programme, graduates will be able to find employment as vocational teachers.

4.1.5.9 Financing of PTP-3

The first pilot implementations of PTP-3 began in 2012 according to MoEC's directives. However, as in 2011 the central government did not feature the required budget for PTP-3 in the 2012 budget plan, future teachers have had to finance participation in PTP-3 from their own pockets. However, the Ministry of National Education urged local governments to assist PTP-3 participants for financing PTP-3 participation. In 2012, the Ministry of Education and Culture will try to get financing of PTP-3 included

in the 2013 national education budget to make future implementation of PTP-3 no longer reliant on self-financing participants. Currently virtually all LPTK in Indonesia reject the notion of getting PTP financed by the participants. The fear is quite real that prospective teachers will have little interest in participation as similar programmes like teacher certification via PTP-2 is fully financed by the government.

4.1.6 Experiences of PTP implementation in Indonesia

4.1.6.1 Experiences of PTP implementation in LPTK-PTK in Indonesia

Over 200 public and private LPTK are spread throughout Indonesia today. *Keputusan Menteri Pendidikan Nasional No. 126/P/10* defines which LPTK are allowed to conduct PTP-2 in the different subject areas and the related quotas. The overall participant quota across all subject areas is 13,020 per year, including 1,110 per year for vocational subject areas. The following table lists the LPTK-PTK running PTP-2 for vocational teachers in 2010, 2011 and 2012.

Table 3: **PTP-2 Programme for Vocational Teacher Education in LPTK Indonesia**

No	Institution	Province	PTP-2 conducted for Vocational Teachers	Participants		
				2010	2011	2012
1	Universitas Negeri Jakarta	DKI Jakarta	<i>Pendidikan Tata Boga</i> (Catering Education)	30	30	30
			<i>Pendidikan Tata Busana</i>	30	30	30
			<i>Pendidikan Tata Rias</i>	30	30	30
			<i>Pendidikan Teknik Elektro</i> (Electrical Eng. Education)	30	30	30
2	Universitas Negeri Makassar	South Sulawesi	<i>Pendidikan Teknik Elektronik</i> (Electronic Education)	30	30	30
			<i>Pendidikan Teknik Elektro</i> (Electrical Eng. Education)	30	30	30
			<i>Pendidikan Teknik Otomotif</i> (Automotive)	30	30	30
			<i>Pendidikan Kesejahteraan Keluarga</i>	30	30	30
3	Universitas Negeri Malang	East Java	<i>Pendidikan Teknik Mesin</i> (Mechanical Eng. Education)	30	30	30
4	Universitas Negeri Manado	North Sulawesi	<i>Pendidikan Teknik Bangunan</i> (Building Construction) Education)	30	30	30
			<i>Pendidikan Teknik Elektro</i> (Electrical Eng. Education)	30	30	30
5	Universitas Negeri Medan	North Sumatera	<i>Pendidikan Teknik Bangunan</i> (Building Construction)	30	30	30
			<i>Pendidikan Tata Boga</i> (Catering Education)	30	30	30

No	Institution	Province	PTP-2 conducted for Vocational Teachers	Participants		
				2010	2011	2012
6	Universitas Negeri Padang	West Sumatera	<i>Pendidikan Teknik Mesin</i> (Mechanical Eng. Education)	30	30	30
			<i>Pendidikan Teknik Elektro</i> (Electrical Eng. Education)	30	30	30
			<i>Pendidikan Teknik Otomotif</i> (Automotive)	30	30	30
			<i>Pendidikan Kesejahteraan Keluarga</i>	30	30	30
			<i>Pendidikan Teknik Bangunan</i> (Building Construction) Education)	30	30	30
			<i>Pendidikan Teknik Elektronika</i> (Electronic Education)	30	30	30
7	Universitas Negeri Semarang	Central Java	<i>Pendidikan Teknik Bangunan</i> (Building Construction) Education)	30	30	30
			<i>Pendidikan Teknik Elektro</i> (Electrical Eng. Education)	30	30	30
			<i>Pendidikan Teknik Mesin</i> (Mechanical Eng. Education)	30	30	30
			<i>Pendidikan Kesejahteraan Keluarga</i>	30	30	30
8	Universitas Negeri Surabaya	East Java	<i>Pendidikan Kesejahteraan Keluarga</i>	30	30	30
			<i>Pendidikan Teknik Elektro</i> (Electrical Eng. Education)	30	30	30
			<i>Pendidikan Teknik Bangunan</i> (Building Construction) Education)	30	30	30
			<i>Pendidikan Teknik Mesin</i> (Mechanical Eng. Education)	30	30	30
9	Universitas Negeri Yogyakarta	DIY	<i>Pendidikan Teknik Elektro</i> (Electrical Eng. Education)	30	30	30
			<i>Pendidikan Teknik Boga</i> (Catering Education)	30	30	30
			<i>Pendidikan Teknik Busana</i> (Fashion Education)	30	30	30
10	Universitas Pendidikan Indonesia	West Java	<i>Pendidikan Teknik Bangunan</i> (Building Construction) Education)	30	30	30
			<i>Pendidikan Kesejahteraan Keluarga</i>	30	30	30

No	Institution	Province	PTP-2 conducted for Vocational Teachers	Participants		
				2010	2011	2012
			<i>Pendidikan Teknik Mesin</i> (Mechanical Eng. Education)	30	30	30
11	Universitas Sebelas Maret	Central Java	<i>Pendidikan Teknik Mesin</i> (Mechanical Eng. Education)	30	30	30
			<i>Pendidikan Teknik Bangunan</i> (Building Construction) Education)	30	30	30
12	Universitas Syiah Kuala	Nangroe Aceh Darussalam	<i>Pendidikan Kesejahteraan Keluarga</i>	30	30	30
13	Universitas Sarjana Wiyata Tamansiswa	DIY	<i>Pendidikan Kesejahteraan Keluarga</i>	30	30	30
Total enrolment for PTP-2				1.110	1.110	1.110

Source: Appendix of *Keputusan Menteri Pendidikan Nasional No. 126/P/10*

However, at the time of implementation, quotas were increased, and LPTK had to run multiple batches per subject area and year.

This subchapter deals with the implementation of PTP-2 in selected LPTK-PTK. LPTK-PTK were chosen to represent various regions in Indonesia, irrespective of whether it was in or outside of Java. Interviews with representatives from LPTK-PTK were conducted during their participation in *Rembug Nasional SMK Membangun Bangsa* (national discussion on SMK building the nation) which was held at FPTK UPI from 18th to 20th of June 2012. At this event LPTK-PTK discussed the concepts, means and measures for increasing the quality of vocational teacher education.

Indonesia University of Education (Universitas Pendidikan Indonesia – UPI) has already had comprehensive experiences in conducting PTP-2, including for vocational teachers. PTP-3, however, was run only for a restricted number of majors (for teachers of primary schools and natural science teachers). PTP-3 for vocational teachers was not yet implemented. A rector's decree defines which study programmes are entitled to offer PTP programmes. This definition is valid for three years. The departments/study programmes which implement PTP are evaluated regularly by a team appointed by the rector. The evaluation results are reported to the MoEC's Directorate General of Higher Education.

Universitas Negeri Surabaya (State University of Surabaya – UNESA) ran 23 different PTP-2 programmes in the 2011/2012 academic year. There has been an increase in the quotas of PTP-2 places, so meanwhile most of the candidates for teacher certification attend PTP-2 without going through the portfolio assessment process. Certification by portfolio assessment is limited to 10% of the total teacher certification quota¹³.

According to Muhammad Yahya, responsible for the PTP at Universitas Negeri Makassar (State University of Makassar – UNM), UNM applies a block schedule for PTP. He pointed out, that at UNM PTP-2 for in-service vocational teachers is run entirely by the university without any industry involvement. In the conceptualisation of the future PTP-3 programme, UNM is considering the focus should be on the development of pedagogical skills, and a matriculation (bridging) programme will be required

¹³ Apparently this is in contradiction to the information given above, that certification by portfolio assessment was abolished in 2010.

for undergraduates from non-education programmes. For participants with an educational background attention should be paid to strengthening the pedagogical skills and developing the relevant occupational knowledge and skills.

One of the major problems in organizing the teaching practice period has turned out to be the different timings of the universities' and vocational schools' academic calendars. Time arrangements have to be adjusted, so teaching practice can take place synchronised with the academic activities of the school.

In accordance with the relevant regulations, each LPTK has the authority to define its curricula and teaching methods. This leads to differences between LPTK in terms of PTP concept, implementation and quality. UNM for example applies a block schedule, and UNESA involves industry in the programme and gives decisive weight to the workshop.

The consequences of these differences are twofold. On the one hand, universities can draw profit from their better offers in terms of the advantages in the quality competition between educational institutions. On the other hand, the outcome of the PTP programme is not uniform, and the danger arising from this could result in the teachers attending PTP in a less recognized institution (e.g. in the eastern parts of Indonesia¹⁴) are not considered competent enough to teach in more developed regions.

4.1.6.2 Experiences of PTP implementation from the perspective of vocational school teachers

During *Rembug Nasional SMK Membangun Bangsa* a group interview was conducted with vocational teachers attending the event. The teachers worked in a number of different public and private vocational schools all over West Java, including in SMKN 4 Jakarta, SMKN 2 Bandung, SMKN 12 Bandung, SMKN 13 Bandung, SMK Muslimin I Bandung, SMK Pasundan 3 Bandung, SMK Setia Bakti Bandung, SMK YAPARI Aktripa Bandung, SMKN 2 Baleendah, SMKN 3 Baleendah, SMK 2 Subang, SMKN 2 Tasikmalaya, etc.

As PTP-3 has not yet been implemented, the interview concentrated on gathering information on the teachers' expectations regarding the outcome of practical vocational teacher training. The interview showed that the teachers are well aware of the implementation of PTP-2. Quite a number of them already possessed a professional teacher certificate, partly earned through portfolio assessment and partly through participation in PTP-2. It seemed, however, that the teachers were not yet well informed about PTP-3 and its implementation scheduled for 2014. This can either be due to poor information policy, or that in-service teachers are not personally affected by the upcoming scheme

The plan for implementing PTP-3 to enhance teacher professionalism is well appreciated. According to the teachers, novice teachers need a practical training programme, especially those who graduated from non-educational study programmes. They must be equipped with pedagogical skill, the ability to handle the class, knowledge of school management, and possess sufficient occupational skills related to the field they are teaching. In terms of personality a future teacher must be ready to handle the class, perform in front of the class, and be the teacher figure for the students.

Participating teachers also pointed out, that the time coordination must be appropriate between the PTP-3 programme organised by LPTK-PTK and the teaching schedule in SMK, to insure a swift organisation of PTP-3 participants' teaching practice. When a block schedule is used in PTP-3, the teaching practice period should be aligned with the teaching period at SMK to assure, that the individual candidate teachers' presence in school takes place in one single semester.

¹⁴ There is a perception prevalent in Indonesia, that education as a whole is less developed in the more remote regions.

4.1.6.3 Practical training programme for TVET teachers in the perspective of industry

Interviews with several representatives from companies (e.g. PT. Telkomsel and Global TV) were conducted to get some insight into the views of the industry sector regarding vocational school graduates in relation to the world of work. The research team anticipated that information on companies' experiences employing graduates of SMK would provide hints on how vocational teacher education should be shaped to educate vocational school students better.

According to the information given by the company representatives, SMK graduates compete with graduates of general upper secondary schools (SMA) for employment in the industry sector, particularly in small and medium-sized companies. However, the percentage of SMA graduates employed in the industry sector is higher than the one of SMK graduates. The interviewees mentioned some plus and minus points observed in SMK and SMA graduates. SMK graduates sometimes lack specific competences required for a particular scope of work. On the other hand, they usually adapt faster to work situations than graduates from SMA, and are more ready to establish themselves in the world of work.

The SMK curriculum is intended to provide students with the required occupational skills and prepare them for continuing in higher education. Thus SMK students have to learn occupational content as well as general (academic) education content, which is perceived by many as an overload leading to deficiencies in their core (occupational) competence area. Furthermore, due to the entrance selection scheme for upper secondary schools, on average, SMK students beginning upper secondary education are of a lower academic standard than SMA students. Combined with the higher workload in SMK their academic competence development could be jeopardized. Recruitment processes in companies, however, tend to be biased towards academic competences and treat SMK graduates the same way as SMA graduates irrespective of the prevalent occupational competence requirements. Nowadays, big companies tend to prefer graduates from polytechnics (vocational universities) to graduates from SMK because of their higher qualifications and companies are of the opinion that SMK graduates do not meet the increased requirements.

The companies' opinion that SMK graduates fail to meet the current requirements should be taken into consideration. This must reflect on what and how the students learn in SMK and how the teachers' competences affect the quality of SMK graduates. It is largely considered that the quality of vocational teachers is one of the decisive factors for improving the quality of SMK graduates. The PTP programmes, both PTP-2 and the planned PTP-3 aim at improving vocational teacher quality. In conclusion, if the teachers' competencies are improved, the quality of SMK graduates will be higher and the graduates will be better equipped with the skills and expertise needed by the industry. It will be necessary, however, to carefully evaluate whether the implemented PTP programmes do meet the aspirations, and if they do not how they have to be modified to be successful. This consideration brings us to the next section of this Indonesia country report.

4.1.7 Evaluation of PTP implementation

Aside from the assessment of the learning outcomes of the PTP-2 participants, little is known about evaluation and assessment of the implementation of the programmes as such. For each single PTP implementation the respective LPTK has to prepare a report to DGHE, but these reports are usually not published. In addition, the implementation evaluation is conducted by the respective LPTK itself, mainly employing internal examiners.

According to the book *Panduan Pendidikan Profesi Guru* (PPG) published by the Directorate General of Higher Education, five aspects of the programme implementation should be evaluated: context, input, process, output and outcomes. The context evaluation includes the needs and expectations of districts

and stakeholders of the PTP programme. The evaluation of input incorporates aspects of infrastructures, human resources involved in the programme, learning facilities, curriculum, learning materials, corresponding agencies, academic rules and regulations, organization of the programme, and quality assurance. The evaluation in terms of processes includes decision-making processes, governance, management of teaching practice, assessment processes and criteria for successful graduation. Under the output heading the quality and quantity of the graduates should be evaluated. Outcomes finally include the short-term impacts and long-term impacts of the programme on the development of teachers' professionalism and the improvement of education quality in general.

How these refer to the final objective of improving SMK graduates' competences and employability is not completely clear. So far there is no official report published on the implementation of the PTP-2 programme.

4.1.8 Summary of PTP in Indonesia

Table 4 summarizes the Indonesia country report regarding the vocational teacher practical training programme. The information given for PTP-2 is more extensive and better founded than the information on PTP-3 as PTP-3 is still under preparation.

The analysis chapter of this report provides a comparison of the concepts and implementation of PTP in the different countries. The summary table above on PTP applies the same structure as the summaries for the other countries in order to facilitate comparison. The PTP programmes implemented or under development in Vietnam, China, and Germany are presented in the following subchapters.

Table 4: Summary of PTP programmes in Indonesia

No	VARIABLES	PTP-2	PTP-3
1	TVET Philosophy	To prepare individuals who can contribute to the world of work and the society equipped with the relevant knowledge, attitude and skills.	
2	Objectives of PTP	General: to produce teachers who possess the ability to contribute to the objectives of National Education goals. Specific: to improve the in-service teacher quality, who possess pedagogical and professional skills.	General: to produce teacher candidates who possess the ability to contribute to the objectives of National Education goals. Specific: to produce teacher candidates who possess the pedagogical and professional skills.
3	Concept of PTP	The quality improvement of existing in-service vocational teachers.	The plan for improving the quality of vocational teachers by educating future vocational teachers prior to service (pre-service teacher training).
4	Model of PTP	Theoretical training in university (LPTK), and apprenticeship in vocational schools (SMK mitra). The deepening of pedagogic theory at universities is implemented by using the workshop method, in which the active participation of the participants in the learning process is required. Meanwhile, in the vocational schools participants can develop their practical skill by being directly involved in learning and teaching process.	Theoretical training in university and apprentice in schools (SMK mitra). The pedagogic theory at universities will be implemented by using the workshop method, where the active participation of the participants in the learning process is required. Meanwhile, in the vocational schools participants can develop their practical skill by being directly involved in learning and teaching process.
5	Enrollment	The participants: In-service teachers.	The participants: Future teachers
6	Parties involved	The educational district offices, schools where the in-service teacher work, BPSDMP-PMP,	DIKTI (Dit Diktendik), LPTK, vocational secondary high school (SMK mitra)

No	VARIABLES	PTP-2	PTP-3
		DIKTI (Dit Diktendik), LPTK, vocational secondary high school (SMK mitra)	
7	Curriculum	Regulation stated that the study load is 36-40 credits, however in implementation it is conducted through intensive trainings in 9-10 days.	The credits are differ if the participants educational background does not in-line with the PTP programme, and they must enroll in the matriculation programme. 36-40 credits in one year programme.
8	Assessment	Participation in the class, Workshop assessment, PPL assessment, action research proposal, competence assessment.	Participation on the class, Workshop assessment, PPL assessment, action research proposal, competence assessment.
9	The Financing of PTP	Financed by the government, through the educational district offices	Future teacher self-financing, but planned to be subsidized by educational district offices.
10	The competence	The overall competence of teacher, includes pedagogical competence, personality competence, social competence, and professional competence. There is not yet consensus regarding to the specific competence of SMK teachers	
11	Implementation	Already been implemented in several LPTK-PTK in Indonesia, according to the <i>Permendiknas 052/2011</i>	For vocational teacher education it is not yet implemented, still in planning stage. For this time being it is carried out for primary teacher education and natural science teacher education.
12	(Expected) Outcome	PTP-2 makes substantial contribution to the quality improvement of vocational teachers in SMK.	PTP-3 will make substantial contribution to the integration of future new teachers to the teaching job.

4.2 Vietnam

4.2.1 General introduction of the national education system, vocational training system and vocational teacher training system

4.2.1.1 General introduction of the national education system

The Article 4 of the Law on Education (issued in 2005) states that the national education system includes the following educational levels and training qualifications:

- Early childhood education means crèches – for 3 months up to 3 years old toddler and kindergartens;
- General education consists of primary schools, lower secondary schools and upper secondary schools;
- Professional education is made up of professional secondary education and *vocational training*;
- Undergraduate and postgraduate education (*so-called higher education*) refers to college, undergraduate, master and doctoral degrees.

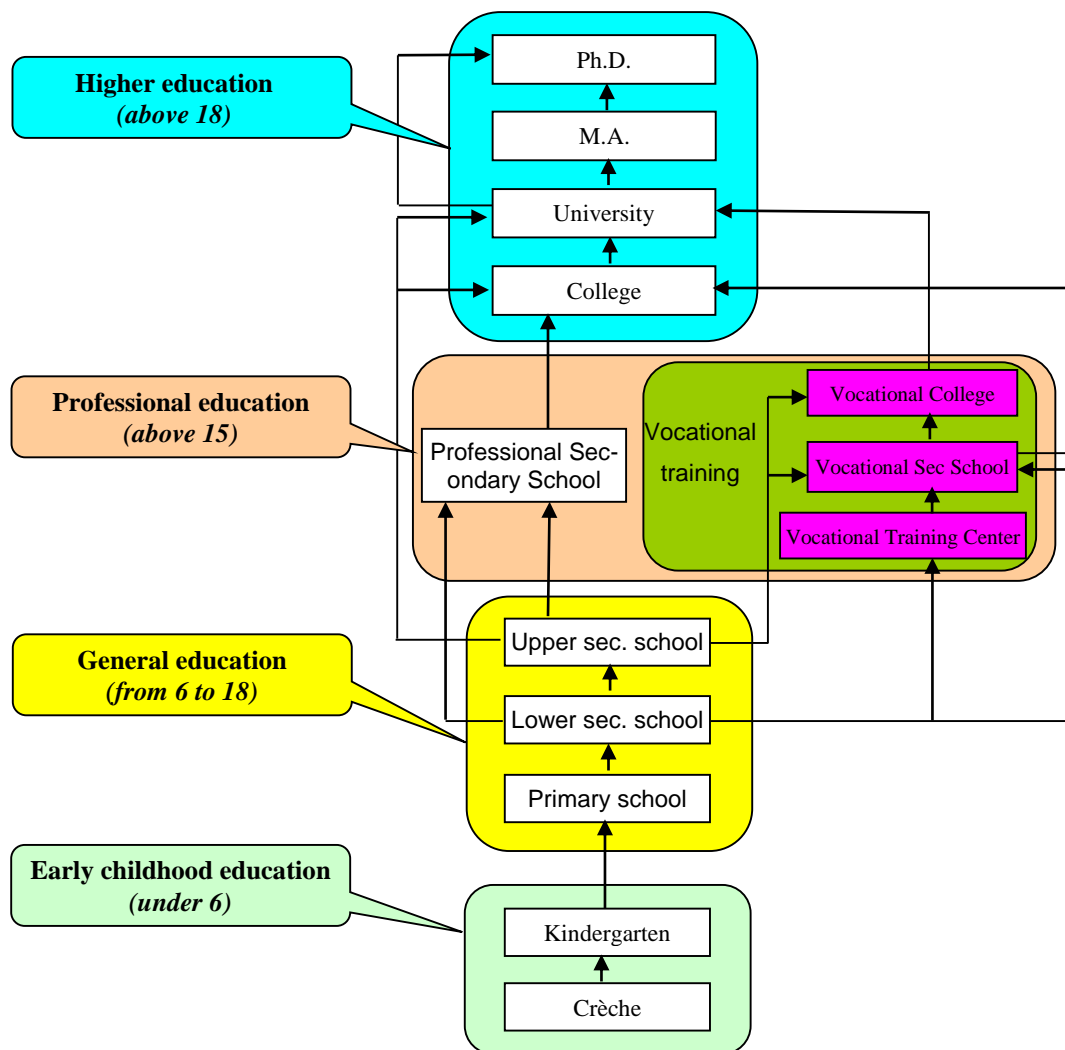


Figure 13: The national education system of Vietnam

The Vietnam national education system is under consistent management by the Central Government. Today the government assigns the management task to two ministries: The Ministry of Labour – Invalids and Social Affairs (MoLISA) is in charge of vocational training and the Ministry of Education and Training (MoET) is in charge of the rest of the national education system.

4.2.1.2 General introduction of the vocational training system

In the past, vocational training used to be under the management of a variety of bodies going by various names:

- 1963: Department of Training for Technical Workers – Ministry of Labour
- 1969: General Department of Training for Technical Labour - Ministry of Labour
- 1978: General Department of Vocational Training (GDVT) – Government had direct management
- 1987: Department of Vocational Training – Ministry of University, Technical Secondary Education and Vocational Training
- 1992: Department of Professional Secondary Education – MoET
- 1998: General Department of Vocational Training – MoLISA

Therefore, vocational training is a sub-system of the national education system under management of MoLISA and its representative body is GDVT. Vocational training is regulated by a separate law; the Law on Vocational Training (issued in 2006).

“Objectives of vocational training include training of technical workforce in direct production and service provision, who have practical capabilities compatible to their qualifications, have work ethics and conscience, have a professional working style, are disciplined and healthy so that after graduation, they can find a job or be self-employed, or acquire further education, meeting the national requirements for industrialization and modernization”¹⁵.

Vocational training consists of three levels:

- The elementary level is conducted for 3 months to 1 year for those of the academic levels suitable for the training occupations. Upon finishing the course, learners are awarded the elementary certificate of vocational training.
- The secondary level is conducted for 1 year to 2 years for those graduating from upper secondary schools and for 3 years to 4 years for those graduating from lower secondary schools. Upon finishing this level, learners are awarded the secondary degree in vocational training.
- The Diploma level is conducted for 2 to 3 years for those graduating from upper secondary schools and for 1 up to 2 years for those who have a secondary level certificate of the same training occupation. Upon finishing this level, learners are awarded the diploma certificate in vocational training.

At the end of 2010, Vietnam had 426 vocational schools - 123 vocational colleges and 303 vocational secondary schools.¹⁶

Vocational enrolment: In 2010, 277,000 students registered for vocational training, of which 96,500 students registered for vocational colleges and 180,500 for vocational secondary schools. The percentage of labourers graduating from vocational schools was 30% in 2010, 4% higher than the objective set in the Education Development Strategy for the period 2001- 2010.

Teaching staff: in 2010 the total number of teachers at vocational schools was 23,167 of which 10,827 were teachers at vocational secondary schools and 12,340 teachers at vocational colleges. 14.07% of the teachers at vocational colleges had master degrees, whereas at secondary schools 7.5%. 21.09% of teachers taught only technical theory, 32.61% only taught occupational practical skills, and 46.3% taught both theory and occupational skills.

Finance: various resources have been mobilized to invest in vocational training. Funds from the State budget accounted for 60%, sources from socialization 40%. The State budget for vocational training increased over the years: in 2001, it was 4.9% of the total expenditure of the State budget for education and training; and by 2010 it had risen to 9%.

4.2.1.3 Introduction of the vocational teacher training system

Vocational teacher training institutions

At the present, the following institutions provide vocational teacher training:

- 4 Universities of Technical Education (UTE) responsible for the training of vocational teachers at the levels of university and college qualifications.

¹⁵ Article 4, Law on Vocational Training.

¹⁶ According to the statistics of GDVT in 2010.

- 1 College of Technical Education (CTE) to train vocational teachers at college qualification level.
- 6 universities have a Faculty of Technical Education for training vocational teachers at university qualification level.
- 1 college has a Faculty of Technical Education for training vocational teachers at college qualification level.
- 25 vocational colleges have faculties of vocational pedagogy for training vocational teachers at elementary and secondary levels.

Forms of training of vocational teachers

Training of vocational teachers with college and university qualifications

Training of vocational teachers with qualifications at college and university levels is conducted at the present in concurrent and continuous forms.

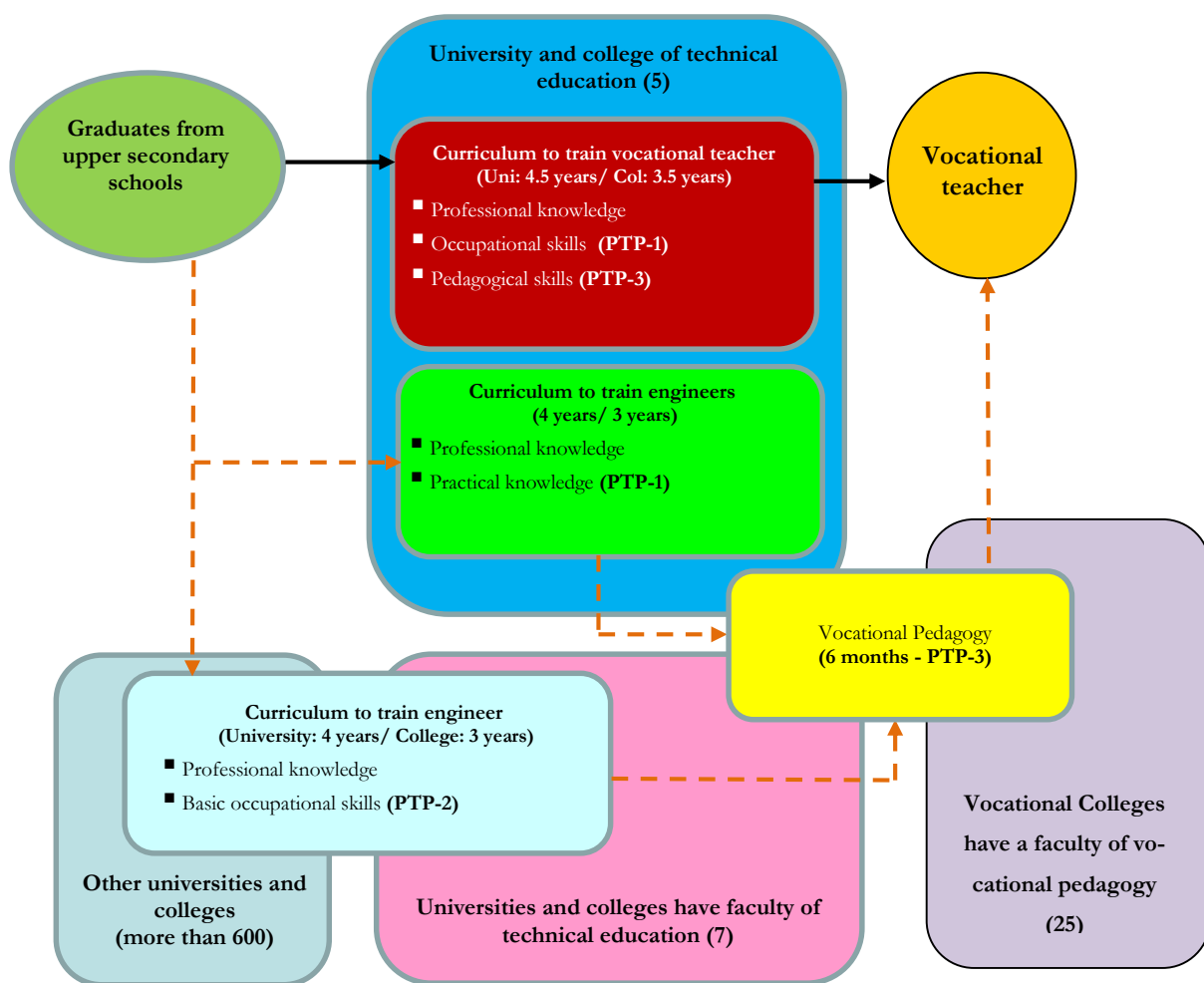


Figure 14: The model of vocational teacher training with college level and university level

Table 5: Comparison of concurrent and continuous training

No.	Compared content	Concurrent training (solid arrows)	Continuous training (dashed arrows)
1	Enrolment prerequisite	<ul style="list-style-type: none"> - Students have at least 2 points more than the minimum score set by MoET at the national entrance examination - Students intend to become vocational teachers right after enrolment 	Students have a higher score than the minimum set by MoET at the national entrance examination
2	Training duration		
	University level	4.5 years	4 years + 6 months
	College level	3.5 years	3 years + 6 months
3	Study fee	Free	Fee to be paid for professional programme and vocational pedagogy programme
4	Training venue	5 Technical Education Institutions	<ul style="list-style-type: none"> - Study of professional knowledge at all universities and colleges nationwide - Study of pedagogy at the 5 institutions of Technical Education and 7 other institutions, which have Faculties of Technical Education
5	Learning content	Professional knowledge occupational skills pedagogical competence	Professional knowledge occupational skills (very basic) pedagogical competence
6	Qualification and Certificate		
	University level	Bachelor of Engineering + Certificate of Vocational Pedagogy	Bachelor of Engineering + Certificate of Vocational Pedagogy (for teaching at secondary and diploma levels of vocational training)
	College level	Diploma of Technical Education	Diploma of Engineering + Certificate of Vocational Pedagogy (for teaching at secondary and diploma levels of vocational training)

Training vocational teachers at elementary level

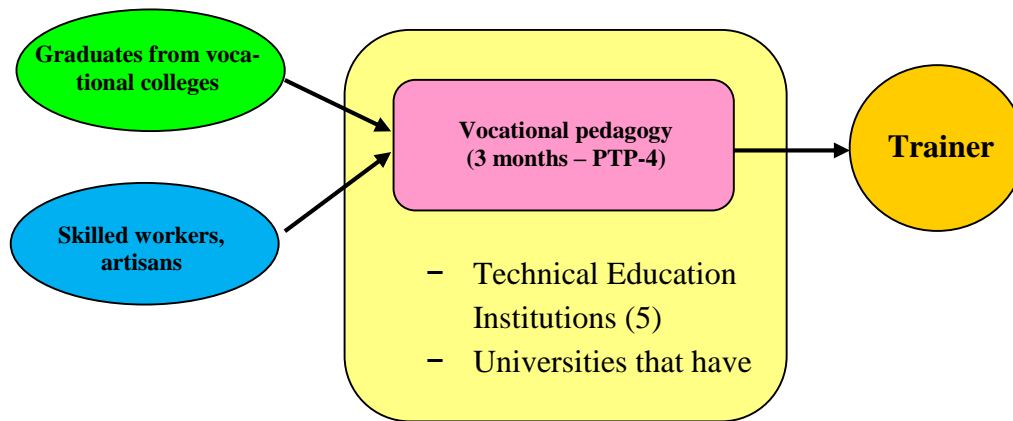


Figure 15: The model of vocational teacher training with elementary level

Aside from the two above-mentioned training forms for vocational teachers, training for vocational teachers at elementary level (so-called trainers) is indispensable in the vocational teacher training system. Implementing this form of training, skilled workers and artisans are enrolled and equipped with minimum vocational pedagogy (PTP-4) to guide trainees and impart their experiences and skills.

This vocational pedagogy training-programme was mandated by GDVT by means of Decision No. 647/QĐ-TCDN dated 25/11/2011. All technical education institutions and training institutions that have a faculty of technical education provide this PTP type 4.

4.2.2 Concept of practical training programmes (PTP)

The vocational training system in Vietnam has 5 compulsory PTP models and another 3 PTP models have been piloted. The compulsory PTP models are the following:

- PTP-1 – an occupational skills training programme for students of universities and colleges of technical education.
- PTP-2 – a basic occupational skills training programme for students of technology universities and colleges.
- PTP-3 – a vocational pedagogical training programme for students of technical education universities/colleges following the concurrent training form and graduates from technology universities/colleges who plan to become vocational teachers at vocational colleges and vocational secondary schools.
- PTP-4 – a vocational pedagogical training programme for skilled workers and artisans to become trainers.
- PTP-5 – a probation programme for novice teachers at vocational colleges and vocational secondary schools.

Under the Scheme “Vocational training reform and development period 2011 – 2020”, the following PTP models are piloting by GDVT:

- PTP-6 is an occupational skills training programme for standardizing occupational practical skills at national level for vocational teachers who graduated from technical education institutions, but who do not yet meet national standards.
- PTP-7 is an occupational skills training programme for standardizing occupational practical skills at national level for vocational teachers who graduated from other technology universities and colleges, but do not meet national standards.

- PTP-8: is an occupational skills training programme for standardizing occupational skills at ASEAN regional and international levels for vocational teachers who are teaching key training occupations at regional and international levels.

Table 6: Comparison of PTP programmes

No	Compared	Pre-service training			Post study (In-service) training				
		PTP-1	PTP-2	PTP-3	PTP-4	PTP-5	PTP-6	PTP-7	PTP-8
1	Programme objective	To train occupational skills	To train basic occupational skills	To train pedagogical competence for vocational teachers to teach at vocational colleges and vocational secondary schools	To train pedagogical skills for vocational teachers to teach at secondary and elementary level (trainers)	To foster professional skills for novice teachers	To standardize occupational skills at national level for vocational teachers, graduating from Technical Education universities/college	To standardize occupational skills at national level for vocational teachers, graduating from technology universities/colleges	To standardize occupational skills at ASEAN regional and international levels for vocational teachers, who are teaching key training occupations
2	Learner	Students at Technical Education universities/colleges	Students at other technology universities/colleges	Students of technical education universities/college following the concurrent training form Graduates from technical education universities/colleges (not following the concurrent training form) and technology universities/colleges expecting to become vocational teachers Vocational teachers at vocational colleges and vocational secondary schools who have not met the national standard of vocational pedagogical competence	Skilled workers, artisans	Novice teachers at vocational colleges and vocational secondary schools	Teachers at vocational colleges and vocational secondary schools graduating from technical education universities/colleges, but do not yet meet the national standard of occupational skills	Teachers at vocational colleges and vocational secondary schools graduating from other technology universities/colleges, but do not yet meet the national standard of occupational skills	Teachers at vocational colleges and vocational secondary school, teaching key training occupations at ASEAN regional and international levels

No	Compared	Pre-service training			Post study (In-service) training				
		PTP-1	PTP-2	PTP-3	PTP-4	PTP-5	PTP-6	PTP-7	PTP-8
3	Training duration	18 weeks (consecutive)	5~7 weeks (consecutive)	6 months (consecutive)	3 months (consecutive)	12 months (consecutive)	480 hours (consecutive)	960 hours (consecutive)	Variable, depends on occupations (from 1 – 4 moths)
4	Curriculum developed by	Technical education institutions under the frame curriculum issued by MoET	Technology universities and colleges under the frame curriculum issued by MoET	GDVT/MoLISA	GDVT	Agreement between novice teachers and vocational institute	GDVT	GDVT	GDVT in cooperation with Malaysia, Thailand, Japan Germany, the UK, the US, etc.
5	Institution delivering the PTP	Technical education institutions	Other universities/colleges	<ul style="list-style-type: none"> - Technical education institutions - universities/colleges that have a technical education faculty - vocational colleges that have a faculty of vocational pedagogy. 	<ul style="list-style-type: none"> - Technical education institutions; - universities/ colleges that have a technical education faculty - vocational colleges that have a faculty of vocational pedagogy 	Vocational colleges and vocational secondary schools	GDVT	GDVT	GDVT and ODA-funded project
6	Training venue	Technical education institutions	Other universities and colleges	<ul style="list-style-type: none"> - Technical education institutions - Universities, colleges with a faculty of technical education - Vocational colleges, vocational secondary schools 	<ul style="list-style-type: none"> - Technical education institutions - universities, colleges with a faculty of technical education - vocational colleges with a faculty of vocational pedagogy - other institutions as agreed by the parties. 	Vocational colleges and vocational secondary schools	<ul style="list-style-type: none"> - At training institutions that meet the national standard of teaching staff and equipment - At overseas training institutions 	<ul style="list-style-type: none"> - At training institutions that meet the national standard of teaching staff and equipment - At overseas training institutions 	<ul style="list-style-type: none"> - At training institutions that meet the national standard of teaching staff and equipment - at overseas training institutions
7	Time of delivering	Semester 4,5,6,7 and 8 of the training curriculum for vocational teachers in technical education institutions	Semester 5,6 and 7	- Semester 7,8 and 9 (for students of the concurrent training form in technical education institutions)	Before or directly after learners become trainers (vocational at elementary level)	Directly after entering service in vocational institutions	Annually, according to GDVT's plan	Annually, according to GDVT's plan	<ul style="list-style-type: none"> - Annually, according to GDVT's plan - based on operational plan of ODA-funded project

No	Compared	Pre-service training			Post study (In-service) training				
		PTP-1	PTP-2	PTP-3	PTP-4	PTP-5	PTP-6	PTP-7	PTP-8
				- After graduation (for students who studied at other universities/ colleges)					
8	Finance	- Students of technical education institutions in the concurrent training form do not pay study fees. - Students of technical education institutions in continuing training form pay study fees.	Students pay a study fee (as regulated)	- Students of technical education institutions in the concurrent training form do not pay study fees. - Other students pay study fees.	Students pay study fees (as regulated)	Vocational colleges and vocational secondary schools pay for supervisors/mentors of novice teachers based on regulations of each institution	State budget (through GDVT)	State budget (through GDVT)	- State budget (through GDVT) - ODA-funded projects
9	Curriculum structure (practice/theory)	100% practice	100% practice	400 hours of theory, 160 hours of practice (30% practice, 70% theory)	120 hours of theory; 40 hours of practice (25% practice, 75% theory)	No fixed structure (depending on supervisors/mentors)	100% practice	100% practice	100% practice
10	Assessment	Students practice at the workshop for the whole programme as regulated. After each credit, there is a test to assess the practical skills of students. The result is expressed by a score. The score of each credit contributes to the average score for the academic year and for	Students practice at the workshop for the whole programme as regulated. After each credit, there is a test to assess the practical skills of students. The result is expressed by a score. The score of each credit contributes to the average score for the academic year and for the whole programme.	- Assessment leading to a score after each subject/ module.	- Assessment leading to a score after each subject/ module.	At the end of the probation period, a report on the progress of the novice teacher is prepared by his/her supervisor/mentor and submitted to the management board of the vocational institute for official approval of terminating the probation period	The assessment is conducted based on national occupational skill standards (level 4)	The assessment is conducted based on national occupational skill standards (level 4)	The assessment is conducted based on ASEAN regional and/or international occupational skill standards

No	Compared	Pre-service training			Post study (In-service) training				
		PTP-1	PTP-2	PTP-3	PTP-4	PTP-5	PTP-6	PTP-7	PTP-8
		the whole programme.							
11	Qualification			Certificate of vocational pedagogy (for teaching at secondary and diploma level in vocational training)	Certificate of vocational pedagogy (for teaching at elementary level in vocational training)				
12	Compulsory level	Compulsory	Compulsory	Compulsory	Compulsory	Compulsory	Piloting	Piloting	Piloting
13	Difficulties in delivery	<ul style="list-style-type: none"> - Insufficient budget for providing consumable materials - lack of training equipment and modern equipment for some training fields - rigid frame curriculum 	<ul style="list-style-type: none"> - Insufficient budget for providing consumable materials - training duration is too short for practice; - lack of training equipment and modern equipment for some training fields - Lack of good teaching staff/trainers of trainers. 	<ul style="list-style-type: none"> - Lack of chances for practice; - Lack of advanced teaching methods. 	<ul style="list-style-type: none"> - Limitation of learners' knowledge. - Lack of advanced teaching methods. 	<ul style="list-style-type: none"> - Vocational institutions shorten time and training content for novice teachers in the probation period due to lack of teachers. - probation content depends heavily on supervisors. 	<ul style="list-style-type: none"> - Limited budget; - limited number of highly-qualified trainers of trainers; - large number of teachers do not meet occupational skills standards; - lack of modern training equipment. 	<ul style="list-style-type: none"> - Limited budget; - limited number of highly-qualified train of trainers; - large number of teachers do not meet occupational skills standards. - lack of modern training equipment 	<ul style="list-style-type: none"> - Limited budget; - limited number of highly-qualified train of trainers; - large number of teachers do not meet occupational skills standards. - lack of modern training equipment

4.2.3 The piloting of PTP-6, PTP-7 and PTP-8 under the scheme “vocational training reform and development period 2011-2015”

4.2.3.1 Rationale for piloting PTP-6, PTP-7 and PTP-8

MoLISA issued Decision No. 09/2008/QĐ-BLĐT BXH, dated 27/03/2008 regulating national standards of occupational skills and Circular No. 30/2010/TT-BLĐT BXH dated 29/9/2010 regulating the standards of vocational teachers. According to the Decision and the Circular, vocational teachers at vocational colleges and vocational secondary schools must have occupational skills of at least level 4. However, by 2010, only about 9,000 of 19,400 vocational teachers at vocational colleges and vocational secondary schools (43,6%) met the standard of occupational skills. Hence, it is necessary to train over 10,000 vocational teachers at vocational colleges and vocational secondary schools in occupational skills so they meet the national standard of occupational skills by 2014.

Within 5 years, vocational colleges and vocational secondary schools need to recruit 17,400 teachers for there to be 37,000 vocational teachers teaching at vocational colleges and vocational secondary schools by 2015. The sources for recruitment are students graduating from technical education institutions and engineers graduating from other universities and colleges nationwide. However, PTP-1 and PTP-2 cannot support these future vocational teachers to reach level 4 of occupational skills. If 17,600 vocational teachers are recruited, they need to be trained to meet the national standard of occupational skills.

4.2.3.2 Objective of PTP-6, PTP-7 and PTP-8 until 2015

On average, each year it is necessary to accommodate nearly 5,000 lecturers and teachers at secondary school and college level. By 2015, 17,400 vocational teachers and lecturers at college level and secondary level should be improved and qualified. These teachers and lecturers must be provided with both pedagogical skill and occupational skills.

- Improving occupational skills for 10,000 teachers who fall below the occupational skills standard.
- 6,000 of almost 28,000 vocational teachers must be trained to meet the occupational skills standards of advanced countries in the region and in the world.

4.2.3.3 Solution and implementation plan until 2015

Develop curricula to train occupational skills for vocational teachers of national occupations (107 occupations)

30 occupations are trained at institutions of technical education. For each of these occupations 2 distinct curricula are needed, one for PTP-6 with a volume of 480 hours for graduates of institutions of technical education, and one for PTP-7 with a volume of 960 hours for graduates of other universities and colleges.

For the other occupations (approximately 77 occupations) one curriculum each for PTP-7 for graduates from universities and colleges majoring in the same subject are required.

Develop the staff of vocational teachers at secondary school level and college level to meet the standard

To increase the number of vocational teachers and lecturers and train them to meet the demand, it is necessary to recruit graduates from universities and train them in pedagogical skills (PTP-3) and occupational skills (PTP-6, PTP-7), and recruit graduates from universities and train them in vocational pedagogical skills (PTP-3);

The training of vocational teachers is implemented as follows:

- Vocational pedagogy skills training is organized at faculties of technical education of vocational schools and institutions of technical education.
- Occupational skills' training is organized at vocational colleges which teach occupations at national level and international level in combination with internships at factories.

Develop vocational teachers with professional knowledge and occupational skills at regional and international level for teaching ASEAN regional and international occupations.

- Apply the standard of vocational teachers of advanced countries in the ASEAN region (Malaysia, Thailand, Singapore) and in the world (Germany, Korea, England, the USA);
- Recruit good vocational teachers and lecturers as well as graduates with high marks to train and improve their pedagogical skills, occupational skills, and give them mastery over new technology according to the curricula of advanced countries in the ASEAN region and in the world and have their competences certified by these countries.

Table 7: **Financing until 2015**

No.	Activities	Unit price	Quantity	Amount of money	Source of fund			
					National Budget*	ODA*	Local budget*	Other*
1	Developing the curricula to enhance occupational skills of teachers	0.55	107	59	59	0	0	0
2	Enhancing the standardization and improving occupational skills of vocational teachers	0.05	22,000	1,100	336	0	474	290
3	Training according to the standard of advanced countries in the ASEAN region and in the world for teachers of national and international key occupations	0.2	6,000	1,200	600	400	200	0
4	Enhancing English proficiency level for vocational teachers at international level	0.03	500	15	5	0	0	0
	Total			2,374	1,000	400	674	300

*Currency unit: Billion VND

4.2.3.4 The outcome of 2011

a) For occupations at the national level:

- Develop the curricula to enhance occupational skills: 20 curricula for 10 occupations have been developed (2 curricula for each occupation): Welding, automotive technology, industrial electricity, industrial electronics, metal cutting, mechatronics, household electricity, etc.
- For each of the 20 mentioned curricula, pilot classes with 20 students each (400 students in total) have been implemented. Vocational teachers from institutions of technical education, vocational colleges and vocational secondary schools took part in these classes.

b) For occupations at ASEAN regional and international level

- Regarding ASEAN regional occupations: 95 vocational teachers took part in occupational skills courses for 4 occupations: automotive technology (24 teachers), welding (24 teachers), industrial electricity (24 teachers), industrial electronic (23 teachers) in Malaysia (SEGi International Education Corporation). After 4 months of study 39 participants reached level 4, and 56 participants reached level 3.
- Regarding international occupations EBG (Germany) was invited to Vietnam to train and issue certificates for Metal Cutting for 2 classes of 40 students.

4.2.3.5 Plan for 2012

a) For national invested occupations

- Develop curricula for 30 occupations
- Train approx. 600 vocational teachers (approx. 30 classes, each class with 20 students)
- Finance: 35 billion VND from national budget.

b) For regional and international occupations

- Choose partners to train and choose the form of study
Malaysia is the selected partner to train occupational skills of 30 occupations for 650 vocational teachers. Training courses in metal cutting, mechatronics, automotive technology will be conducted in Vietnam over 2 months and in Malaysia for 1 month. Training courses of ship controlling and ship engine operating are conducted in Vietnam and internship is conducted in Malaysia. Japan has been chosen to train occupational skills of automotive technology. About 100 teachers will take part in the programme. 60 vocational teachers at internationally funded schools and schools belonging to MoLISA will take part in courses in Japan, while the others will study in Vietnam with Japanese experts. Germany has been chosen to train occupational skills in metal cutting. About 4 classes will be opened for 70 teachers at invested vocational schools. Invested vocational schools are those vocational schools which received funding for selected occupations in teacher training, curriculum development, training equipment and so on.
- Subject of the courses: vocational teachers of regional and international key occupations, some leading teachers of nationally invested occupations and lecturers of institutions of technical education belonging to MoLISA;

- Finance: 200 billion VND from national budget (about 10 million USD).

4.2.3.6 Other PTP models of schools, ODA-funded projects and enterprises

a) Schools:

According to a survey, aside from the above-mentioned eight models, universities, colleges, vocational colleges and vocational secondary colleges have their own practical training programmes. However, those programmes are short term programmes lasting for 1 week to 3 weeks. The programmes mainly train learners with sub-skills to change working positions or improve their practical skills. When taking part in these programmes, learners have to pay tuition fee.

For example, at schools with welding occupations, there are short-term programmes for learners to study and obtain the welding certificate at such positions as 3G to 6G. This G numbers mean different welding positions. 6G is the most difficult welding position in a welding occupation.

b) ODA projects for vocational training:

In ODA projects for vocational training implemented in Vietnam, there are training programmes to enhance pedagogical capacity and professional capacity for vocational teachers of recipient institutions. The contents of these programmes are developed by domestic and foreign experts together with the recipient institutions. The training duration of each course is less than 10 days. The finances for these courses are from ODA non-refundable budgets.

c) Enterprises:

The majority of small and medium enterprises do not have their own practical training programmes for their labourers. When they need to train their workers in practical skills, they send them to a vocational institution for short term courses or invite teachers to conduct training in their enterprise. Normally, the enterprises pay the participants' tuition fees but sometimes they ask the labourers to pay a part of the tuition fee out of their own pocket.

Some big state-funded enterprises such as Vietnam National Coal-mineral Industries Holding Corporation Limited, Vietnam Electricity, Petro Vietnam, Corporation of Machine Assembly, Vietnam Posts and Telecommunications Group, etc., often need to train a large number of labourers. To train their human resources, they established vocational colleges or vocational secondary schools as part of their corporations. These vocational colleges and vocational secondary schools still have to follow the Law on Vocational Training. Therefore, the curricula of occupational skills in these enterprises are also the curricula of their schools.

4.2.4 Experiences of PTP implementation

- Implementation of the programme should be attached to real production to gain revenue and reduce training costs.
- There is a need to cooperate with enterprises to implement the programme to help teachers gain experience in real production.
- Enterprises do not have the capacities for running such practical training programmes.

4.2.5 Summary of the Vietnam country report

Vietnam's education system is managed by the central government. Currently, assigned by the Government, the Ministry of Labour – Invalids and Social Affairs (MoLISA) is responsible for the management of vocational training and the Ministry of Education and Training (MoET) manages other sub-systems of the national education system.

The vocational training system in Vietnam is operated under the Law on Vocational Training 2006. Accordingly, the training philosophy is to train technical personnel for production and service, to gain occupational competence corresponding to a defined training level, and occupational ethics, a sense of discipline and working style, to be of good health, able to find employment, to self-employ or to continue to higher education, and meet the requirements of industrialization and modernization. To achieve this goal, the Vietnamese Government attempts to equip students and apprentices with comprehensive capacity and to focus on practical capacity.

Vocational teacher training curricula are developed and implemented in many different models with the common purpose of creating occupational and pedagogical skills. Currently, there are 5 models of practical training programmes (2 programmes for occupational skill training, 2 programmes for pedagogical skill training and 1 programme for general practice). Aside from these 5 models to be implemented, which are compulsory, three other models are in the pilot phase. Compulsory programmes provide basic vocational skills or pedagogical skills in line with the national standard to ensure that teacher students, engineers or craftsmen are capable of implementing the tasks of a vocational teacher at a corresponding level. Pilot programmes focus on improving occupational skills in some selected occupations to the national standard, ASEAN regional standards and international standards. In some international standard programmes, the capacity of vocational pedagogy is also taken into account.

The General Department of Vocational Training of MoLISA and MoET are responsible for issuing the regulations on the development and implementation of the practical training programmes basing on the compulsory core curricula. The curriculum is designed according to training objectives, and the content and duration of each subject and module are described in detail. In these programmes, trainers and teachers are invited to design and develop the curricula. In the occupational training programme, practice accounts for the entire duration. Pedagogical training programmes deal with both theory and practice, in which theory accounts for 70% - 75% of total programme duration.

Within the project "Vocational training innovation period 2011 - 2020" GDVT/ MoLISA has piloted training models to standardize vocational teacher's capacity. The development of the curriculum is only applied to nationally standardized occupational skill training programmes. Experts from some enterprises also take part in some curriculum development to add the necessary factual, practical skills to these curricula. Currently, a number of programmes have been completed and are being piloted on a small level. With regionally and internationally standardized training programme models, GDVT/ MoLISA approach the import of curricula and documents from the countries in the region and in the world to apply them nationwide. In all of these pilot programmes, practice accounts for a large amount of the total training duration.

Trainees participating in these programmes will be evaluated differently based on different programmes. The popular way of assessment for compulsory programmes (not in the case of practical programmes) is to give trainees scores after each subject, and at the end of the programme to give them an exam. After finishing the programme, trainees will be issued certificates which are valid

nationwide. Regarding pilot programmes, the evaluation is to be based on occupational skill standards.

Aside from assessing the learning outcomes of trainees, an assessment of the implementation of the programmes has not been implemented. Therefore, there is no official report on the advantages and disadvantages of implementing the programmes. However, a few major problems can be easily found. There is a lack of qualified teachers (in terms of both professional and pedagogical capacity) to implement these programmes. Aside from that the large demand for these training programmes make the number of trainees so high the facilities are insufficient for practical training. The curricula are too detailed and inflexible in terms of time and duration. Insufficient finance also makes it difficult to obtain the desired outcomes.

4.3 PTP System in China

4.3.1 Vocational teacher training system in China

The Chinese formal education system is divided into three levels: primary education, secondary education and tertiary education. As figure 16 shows, technical and vocational education in China takes place mainly in upper secondary and tertiary level. As compulsory schooling in China is 9 years and includes only primary and lower secondary education, attending vocational schools or senior middle schools is not obligatory.

Traditionally, vocational education has a lower social status compared to the academic education in China (Xu 2004). As a result vocational schools have been regarded by the youth and their parents as a second choice or “plan B” when making education decisions.

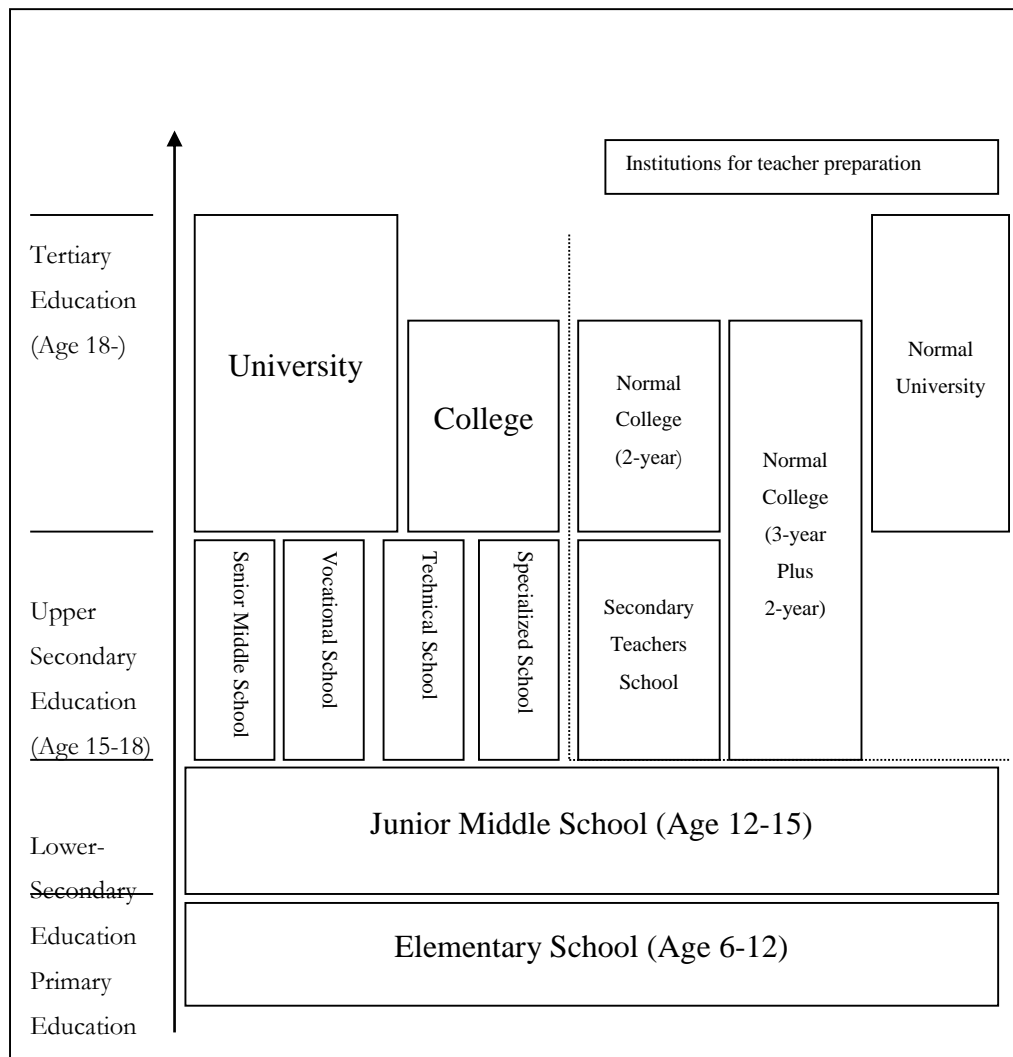


Figure 16: China's formal education system and institutions for teacher preparation

However, rapid economic growth over recent decades has led to an increase in the requirements for well-trained, skilled workers. This apparently has had a positive effect on vocational education as a

whole. On the one hand, school graduates from relatively lower-income families can find attending vocational schooling a good opportunity to gain employment in short period of time; on the other the government has invested remarkable amounts of money in the field of vocational education and training.

In contrast to vocational education, teachers traditionally enjoy a quite high social status in China. Despite their modest income levels compared with other profession at comparable education level, teaching as a profession has good social prestige in contemporary China. The government and legal authority has attaches great importance to teachers and their preparation. A good example of this is the teachers' law - one of the earliest laws been issued in the field of education (1993), two years before the establishing of the education law (1995).

The central government controls and directs teacher education in general through legislation and regulation, which set the basic preparation requirements and standards of teacher candidates. Under this direction, the local governments are responsible for running the teacher education system mainly at a provincial level. They also regulate the entry criteria for teachers (Ding and Sun 2007).

On the legislative level the requirements for vocational school teachers do not differ from those of general schoolteachers at the same level. Three basic principles are in play by which one can obtain the teaching certificate.

The first concerns the academic degree the candidate possesses. According to the Teachers Law, to obtain qualifications to become a senior middle schoolteacher or a teacher of general knowledge courses and specialized courses in a secondary vocational school, technical school or a vocational high school, the candidate should be a graduate of a normal college or other college or university and have four years' schooling or more. The corresponding records of formal schooling for the qualifications of instructors giving guidance to students' fieldwork at secondary vocational schools, technical schools or vocational high schools is to be prescribed by the administrative departments of education under the State Council (Eighth National People's Congress 1993).

As almost all vocational schools are of upper secondary level or above, a college education is necessary to become a teacher in a vocational school. As figure 16 demonstrates, there are universities and colleges specifically designed for teacher education.¹⁷

Originally it was stated that only the graduates from these institutions can become teachers. However, due to the lack of teacher supply, the regulations on teacher certification have been slackened from the late 1990s, to enlarge the teaching force (Ding and Sun 2007). Professionals without teaching experiences and college graduates not graduating from the institutions of teacher education can join the teaching force under certain circumstances.

This relates to the second principle, requiring those who have not received education and training in teaching pass four supplementary tests on pedagogy, education psychology, teaching methods and teaching ability. The first three tests are written exams, however, the test for teaching ability requires the candidate to demonstrate his/her ability in subject-matter instruction, classroom management and questioning, etc.

The third principle concerns language ability, specifically Mandarin or Standard Chinese, the official language of the People's Republic of China. A standard system has been established by the National Mandarin Test Committee to grade levels of speaking and hearing Mandarin. Theoretically anyone

¹⁷ In China institutions characterized with the term "normal" are teacher education institutions.

wishing to become a teacher has to attain a certain level in the standard test before being awarded the certificate.

Aside from the above, neither the teachers law nor the regulation on the qualification of teachers issued by the ministry of education has sent any other competence or education/training requirements for the qualification of teachers. The provincial governments establish the concrete rules for the implementation of the national laws and regulations mentioned above.

4.3.2 Basic conditions of PTP: regulations, infrastructure and implementations

As already stated graduates from institutions of teacher education are permitted to work in vocational schools directly after college/university as long as their Chinese language level is of the required standard. Even college graduates from non-teacher-education institutions can join the teaching force as long as they pass some exams in pedagogy and education psychology etc. This makes it clear there is clearly no “post-study, pre-service” training programme (PTP) for TVET teachers/students as they are permitted to begin their career as a teacher immediately after the study programme.

However, two sets of programmes at both provincial and school level exist to support TVET teacher candidates or novice teachers. These two programmes are referred to as PTP programmes from hereon.

The first PTP programme is designed for future teachers to take during their university/college periods and includes a 10-week internship that takes place in the last year of their study programme. This internship is a prerequisite for graduation and obtaining the degree, and entry into service as a teacher. This programme will now be referred to as PTP-1.

The second set of programmes is designed for those who have already gained their degrees and have just started service in a vocational school. This set of programmes consists of a variety of programmes taking place in the first two years of employment as teachers. All of these programmes will now be referred to as PTP-2. PTP-2 takes place during the novice teacher's probationary period usually of a one year duration. In some schools the PTP-2 programme is extended for another year beyond the probationary period.

Although PTP-1 and PTP-2 take place at different phases of TVET teacher preparation, they do have a certain degree of consistency. This is reflected in two dimensions: 1) PTP-1 is carried out almost at the end of the study programme and PTP-2 is carried out at the very beginning phase of the teacher service. They are well connected to each other in terms of time. 2) Both programmes are designed to introduce the (potential) teachers to the world of work. The content is logically coherent (more details are given in the following text).

The infrastructure differs substantially from the original (ideal) PTP model, in being clearly divided from the study programme and beginning teacher employment. Two different PTP models are at work here: one that is outside the study programme and the service period, and one embedded in the existing programme of study and service, as illustrated in figure 17.

Two Models of PTP Programmes

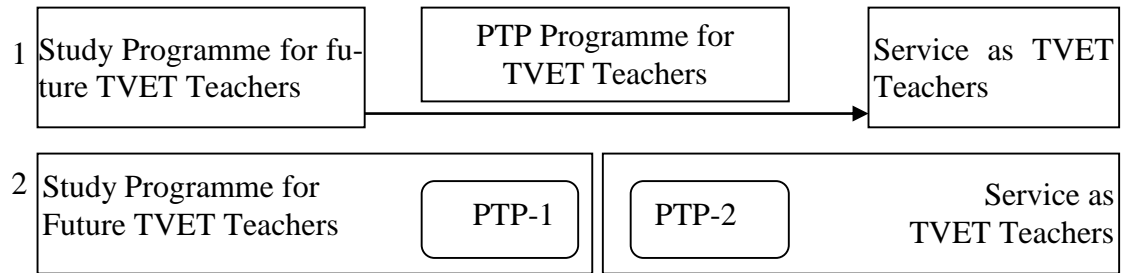


Figure 17: Models of PTP programmes

PTP-1 and PTP-2 have existed in China for decades. PTP-1, however, is far more institutionalized than PTP-2. The latter remains largely a school business for which no clear regulations exist at a national level in terms of how vocational school entrants are to be trained and introduced to their new job.

PTP-1 takes place in both teacher education institutions and vocational schools. The people involved are university teachers and researchers, teachers and vocational schools' personnel. PTP-2 by contrast, is mainly carried out in vocational schools.

4.3.3 Participants, curriculum, teaching and graduation of PTP programmes

The two PTP programmes are now to be described in greater detail. Due to the particular character of China's PTP programmes we implement a different structure to provide a more coherent and comprehensive outline of the programmes. In this part PTP participants are briefly introduced, followed by a description of the basic programme structure and content (including curriculum and teaching), concluding with the graduation requirements.

4.3.3.1 PTP-1

Participants

Naturally PTP-1 participants are college students. During a four-year university study programme, students usually embark on PTP-1 in their 7th semester.

Curriculum and teaching

PTP-1 is basically a 10-week programme made up of three phases: preparation, internship and summary. The first and last phase (preparation and summary) takes place mainly in the university, each of a one week duration. During the 8-week internship the participants remain in the vocational schools.

In the preparation phase the participant is to prepare for the internship, make contacts with the internship schools, and make other relevant arrangements.

During the internship each participant is assigned an instructor (usually an experienced teacher in the relevant subject) by the school. The college of the participant's study also assigns a supervisor, who is to coordinate with the vocational school, advise participants, supervise the entire internship

and help complete the internship report at the programme's end phase. The participants' main tasks lie in the two domains of work in a vocational school i.e. teaching and the work of a class teacher.

In terms of actual teaching, the participants do so at least 4 times (4 teaching hours, 4x45mins), attend other teachers as they teach classes for a minimum of at least 20 teaching hours, and produce the relevant teaching plans, lecture notes, and classroom observation reports after the internship. Under instructor guidance they should take part actively in other teaching activities in the vocational schools, such as vocational school students' practical and field work, after-school counselling, correcting and commenting on homework, examination assessment and other extra-curricular activities.

Regarding class teacher work, participants are normally designated assistant class teacher of a particular class. He/she is expected to take on some of the class teacher's tasks, such as offering students essential assistance regarding their daily life and learning, managing and maintaining classroom order, getting to know the students well, and some administrative work.

In general, participants are to follow the rules and regulations of the vocational school where they do their internship and obey the instructor's guidance. They are to assist the instructor and class teacher (sometimes they are one and the same person) as much as possible in the framework of school rules and internship regulations.

Before the internship comes to an end, the participant should video record his/her own teaching during the class. The video should be continuous that is to say uninterrupted with a duration of at least 40 minutes. The videos are documented and stored in the college/university and can serve as a reference not only for participant evaluation but also for further analysis of teaching.

Graduation

It is compulsory for the students (future teachers) to participate in the programme at the college involved, because they actually obtain academic credits from the internship which count towards their academic degree.

After the internship, during the summary week, participants are to deliver an internship report to the college/university where they study. The internship report is to include: a basic introduction to the internship school (size, specialties, subjects, requirements of the intern, training institution and methods etc.), the main content of the internship, analysis of the instructor's teaching, ideas and thoughts on each domain of activities (teaching, class teacher tasks), reflection on the intern's own activities and suggestions for the programme.

The instructor writes an appraisal opinion on the participants' work during the internship. This opinion report is to be comprehensive and include different aspects of the participants' work e.g. attitude, teaching abilities, competence as a class teacher and so on.

Evaluation of the participant's performance depends on several factors: the instructor's appraisal opinion, the supervisor from the college/university's opinion, assessment of the video recording of the teaching and the internship report written by the participant. Performance is ranked into five categories: excellent, good, normal, pass and fail. Some institutions limit the percentage of participants to be awarded the category "excellent".

Rules set by one teacher education institution in Shanghai, forbid PTP-1 participants to graduate if the following discrepancies have been observed:

- Not taking the teaching job seriously enough and failing to accomplish assigned teaching tasks during the internship;

- Not taking the class-teacher job seriously enough and failing to accomplish the assigned class-teacher tasks during the internship;
- Not writing the internship report seriously enough or plagiarizing;
- Being absent from the internship for longer than a third of its duration;
- Seriously violating internship discipline resulting in bad consequences;
- Changing the institution of internship privately.

4.3.3.2 PTP-2

Participants

At the moment PTP-2 participants are new teachers just entering vocational schools. As the programme normally lasts for over a year (more details below), young teachers who started their teaching career less than 2 years ago are also involved in the programme.

Curriculum and teaching

As mentioned above, no national regulations are in place for PTP-2.

The local government provisions

In 2011 the 16th document of the Shanghai Education Commission for boosting TVET teacher training from 2011 to 2015, forwarded a proposal to establish a special institution for new entrants to the TVET teaching force (Shanghai Education Commission 2011). Concrete plans and programmes are in the planning stages, initially focusing on training the basic ideas of modern vocational education, fostering teachers' ethics, and improving the core skills of teachers and their teaching abilities. According to those responsible for the TVET teacher training programmes within the Shanghai Education Commission, the major structure concerns teachers apprenticeship, mentor supervision and school-enterprise cooperation.

The programme being planned is most likely to cover the following basic modules:

- 1) Basic TVET theory, offering teachers a basic overview on the world of vocational education and its theories.
- 2) Basic condition of vocational education in China, to give young teachers a better knowledge on the status quo of vocational education in China, its fundamental position in the economy and society and the major difficulties and challenges it faces.
- 3) Introduction to vocational schools, enabling the trainees to be better informed on the concrete situation of vocational schools and know more about the students they will teach.
- 4) Teaching methods for vocational education, introducing new teachers to important teaching methods systematically and in exemplary fashion.

It is intended that the first three modules be largely provided by academic researchers whereas the last module will be the work of experienced vocational school teachers.

Aside from the programmes under consideration, the Shanghai Education Commission has taken measures to offer training to new teachers about to become class teachers in their schools. This training lasts for four days and mainly provides basic knowledge on the nature of a class teacher's work. However this programme is limited to the domain of the class teacher and bears little relevance for the general preparation of vocational school teachers on a broad basis.

At the city level (the Chinese administration structure has four vertical levels: central, provincial, city and county governments; the Shanghai government is provincial level), education bureaus in some Shanghai districts have launched programmes for all novice teachers, in general schools and vocational schools. These programmes mainly offer training during the probationary period on basic education virtue, teacher's ethical codes, teaching methods and psychological guidance etc. However none of these are specifically designed for vocational school teachers.

Provisions in schools

The mainstream PTP-2 programmes run largely on a school basis at this point in time. Each school has its own power and rights as to how to train the new entrants to the schools and help them be integrated into their new job. Nevertheless the schools that were interviewed in this study have a lot in common in terms of structure, basic arrangements, and philosophy of the PTP-2 programme.

The teachers new to a vocational school are normally assigned a mentor that teaches the same subject. Sometimes, if they are to become a class teacher, a second mentor is assigned (naturally sometimes the two mentor tasks can be carried out by the same person). Simply put, the mentor's core task is to help the novice become familiar with the school and the teaching tasks and integrate into the teacher community as soon as possible.

Several quality insurance and assessment measures have been applied widely by the vocational schools for this apprentice learning. It is commonly required for a novice teacher to attend the mentor's class on a weekly basis. Some schools set the overall requirement in hours for how often the novice is to attend other teachers' classes. He/she should carefully observe the class teaching, take notes and learn the teaching methods applied. Some schools require the novice to take notes on a form provided by the school and hand the notes to the mentor or department for teacher development. Some schools demand the novice teacher to report to the mentor regularly on the learning progress. The mentor is also asked to attend the novice's class and give suggestions for improvements based on performance.

A few other administrative methods are implemented to facilitate the transition period of the novice teachers. Some schools require new entrants to stay in school throughout all working hours (normally eight hours a day) for the first two years, although the other subject teachers do not have to do this. This is intended to help the new teachers become more quickly integrated into the work environment. Some schools assign less teaching work to the newcomers to give them more time and space to learn teaching. In other schools new teachers are made deputy class teacher, as in the PTP-1 programme, to help them get to know the school and students better.

A few additional programmes are implemented in individual schools. In some schools novice teachers hold regularly seminars on teaching. Here they have the opportunity to discuss the difficulties and challenges they encountered during everyday teaching; methods such as brainstorming are used to encourage discussions among the new entrants. However, these methods are still not either well established or widely used. A common agreement or guideline on how such programmes can be organized and systematized is still lacking.

Graduation

Strictly speaking one never graduates from a PTP-2 programme, as the teachers will almost certainly continue teaching in the schools. However, in each of the schools interviewed an evaluation process is always carried out at the end of the probationary period and here there is much commonality.

Firstly, PTP-2 evaluation is largely practice-oriented i.e. novice teachers are assessed according to their actual teaching performance. It usually takes the form of a “public lecture”, where the mentor and other teachers in the vocational schools are invited to attend and assess the performance and give the novice teacher suggestions for further improvement.

Secondly, the new teacher is to hand in different kinds of reports on the “apprenticeship” learning period. These consist of one or two annual report(s), a paper on teaching and a learning report (at the end of the programme). The annual report and the learning report are similar to a certain degree, the first one being on an annual basis. Some schools recommend the paper on teaching achieve a certain academic level for it to be published in the school newsletter or even in an academic journal.

The mentor also gives assessments of the novice teacher to the human resource department every six months or annually, depending on the school situation. The mentor assessments are critical in judging the quality of the probationary period; however this usually does not form an obstacle for most teachers in beginning official service.

In some schools outstanding novice teachers selected from all new entrants are awarded the honour of “excellent probationary teacher”, which can be helpful in their future career development. The main criterion for this honour being awarded is the mentor's assessment.

4.3.4 Outcome of PTP programmes

4.3.4.1 PTP-1

The overall outcome of PTP-1 is positive according to the instructors' written assessment appraisals on the teacher candidates. The practical abilities of the candidates generally improve during the internship. The candidates themselves also report they have gained better understanding and teaching ability in real classroom circumstances.

Some instructors may write critically on the teacher candidates if they do not attend the internship regularly. Some instructors regard future teachers' attitude to be more important than actual professional competences. This has resulted in some teacher candidates obtaining negative criticism.

One factor that negatively effects PTP-1 outcome is the programme's timing. It is arranged for four-year university students (teacher candidates) to attend the second half of the 7th semester but this period is crucial to students as it is the perfect period for job-hunting and preparing for master programme entrance examinations. Many students cannot devote the time and energy on an internship in vocational schools as they are out searching for jobs, attending job interviews, or learning for exams. This time conflict problem is almost insoluble due to the tight arrangement of the bachelor programme itself. It is extremely difficult for teacher education institutions to find an alternative time slot for this internship. As a result some students may be absent from the internship jeopardizing the effectiveness of the programme.

Another factor affecting PTP-1 can be the vocational schools themselves some of which regard college/university interns as well-trained human resources to serve their own interests. They ask interns to do various jobs besides those necessary for training. Interns correct students' homework, give classes, and prepare paperwork for the leaders of the vocational schools, etc., but receive little guidance. The training of teacher candidates is ignored and the programme puts the trainees and the programme at a clear disadvantage.

4.3.4.2 PTP-2

As for PTP-2, interviewed teachers stated that the programme in general makes substantial contributions to the integration of new entrants to the teaching job. Novice teachers' improvements are all-round: through the PTP-2 programme participants gain basic impressions and knowledge of vocational schools; obtain an understanding of the school's organizational structure and how the school works; their teaching skills and abilities to manage a class improve; and they become more familiar with students. But most significantly, their practical competences in dealing with everyday teacher jobs are significantly fortified.

This positive outcome is in accordance with the initial purpose of the PTP-2 programme, i.e. to introduce the new entrant to the world of work as a teacher and improve his/her skills. However different views were expressed in interviews on PTP-2 effectiveness.

The pertinence of the programme was put into question. As the entire training programme is initiated and organized by the school's department of personnel or teacher development and thus implemented largely on an administrative and bureaucratic basis, the programme barely meets the real needs of novice teachers. No preliminary empirical study is carried out to find out the demands of the new teachers. The design and structure of the training programme is to a great extent based on impulsive decision making by the person responsible. Occasionally, when it is not obligatory for all novice teachers to participate in the programmes, the head of the personnel department simply assigns the teachers "training tasks" without finding out about their real needs. This problem relates to the administration and management of vocational schools in general and cannot be solved easily via technical solutions (Li and Pilz 2011, P. 19).

The programme emphasis was also put in doubt by the interviewed teachers. Some schools attach great importance to training the teacher's ethic codes at the expense, to a certain degree, of professional competences like teaching methods and subject didactics. As many vocational schools' students have difficulties learning academic subjects and often have behaviour lacking discipline, some vocational schools regard moral and management aspects of a teacher to be the highest influential factor affecting the school's performance. This unbalanced emphasis is reflected in the training programmes and is not beneficial to the teachers' long-term development.

One other negative aspect mentioned by the teachers talks of the mentor's influence on the novice teacher being too predominant, limiting the novice's own teaching style and methods. As the mentor provides major guidance to the new entrant and the mentor has certain power in judging the novice teacher's performance he/she has to follow closely what the mentor says and does; this can constrain the new teacher's own innovative powers. The possibility of improving and innovating existing teaching systems is quite confined as a result.

4.3.5 Financing of PTP programmes

Major costs of PTP-1 are the instructors' payments in vocational schools. The teacher candidates' study institution pays a set amount of money to the instructors for each student they guide and support (300 RMB Yuan per student). This money comes from the university/college budget and is dedicated to student internships and similar purposes.

However this payment is normally given centrally from the teacher training college to the vocational school. How the vocational school distributes it to the instructors is unclear.

In general the cost for PTP-2 is not very high as most tasks are accomplished by the novice teacher and the mentor. The schools normally pay the mentor extra money for this task but the sum is quite modest according to the interviewed teachers (around 200 RMB Yuan per month).

For PTP-2 which is in its planning stages at the provincial level, the Shanghai government has established special funding for the entire programme. Individual schools and participants will be concerned by the costs. The current government agenda places great emphasis on teacher training and development in vocational education, making it safe to predict sufficient funding will be made available for the upcoming programme.

As for the PTP-2 programme running at school level, the situation differs from school to school. This is related to the background of the school. Some vocational schools are administrated by the Shanghai Education Commission, whereas others are affiliated to the corresponding industry or even certain state-owned-enterprises. Thus the resources available to them are different. In some schools there may be special funding for PTP-2 programmes, other schools may have to use other funding sources (such as extra money from school owned business) for the programme.

4.3.6 Teacher competence standards

At this moment in time no nationwide accepted competence standard for vocational school teachers in China has been established. According to information given by MOE (Ministry of Education), this standard is being developed by the Central Institute for Vocational and Technical Education in Beijing. However there is a basic requirement for teacher competence in the Teacher's Law. The academic community has been involved in discussion on this issue for over twenty years. The competence standard for vocational school teachers is lacking and there has only been academic discussion on it over recent years.

Under such circumstances it is quite meaningful to look at the teacher competences required at a legal level and summarize the theoretical discussions to gain some basic understanding on teacher competence standards of vocational schools in China.

4.3.6.1 Teacher competence on the legal level

According to the Teachers Law of the People's Republic of China, a teacher is required to: "have sound ideological and moral character, possess a record of formal schooling as stipulated in this Law or have passed the national teachers' qualification examinations and have educational and teaching ability" (MOE: Teachers Law of the People's Republic of China. http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/moe_2803/200907/49852.html)

These are the basic requirements of a teacher's competence/capability. It says nothing explicit of the concrete competences a teacher should possess and only regulates the legal norm. But in the obligations described in the law, some items are related to and can be interpreted as the competence of teachers.

According to this law, teachers are to carry out the following obligations:

- 1) to abide to the Constitution, laws and professional ethics, and be paragons of virtue and learning;
- 2) to implement the educational policies of the State, observe relevant rules and regulations, carry out schools' teaching plans, fulfil teaching contracts and accomplish educational and teaching tasks;

- 3) to conduct education among students based on principles defined in the Constitution, education in patriotism, national unity and the legal system, and education in ideology, morality, culture, science and technology, and to organise and lead students to engage in beneficial social activities;
- 4) to concern themselves with all students, love them, respect their dignity and promote their all-round development in such aspects as morality, intelligence and physique;
- 5) to stop acts that are harmful to students and other acts that encroach upon students' legitimate rights and interests, and criticise and combat the phenomena that impair the sound growth of students; and
- 6) to ceaselessly raise their ideological level and political consciousness and improve their professional competence in education and teaching.

Although these are legal regulations and the intention of the law is not to define teachers' competence standards, some characteristics and abilities can be derived from these obligations, such as being compassionate, understand the basic principles set by the state, paying attention to and helping the development of students. These competencies are closely related to the daily work activities of teachers and are to a large degree educational.

Nonetheless, no concrete measures are given to assess whether the teachers possess these competencies. The legal norms are largely a description of the political and educational wish the state has of teachers. How much of these norms are perceived by the teachers and put into practice is not clear. As a result they cannot be regarded as teacher competence standards.

4.3.6.2 Theoretical discussions on teacher competences

From at least the late 1980s discussions on the competence standards for teachers have been held. A few major milestones/discussions can be found in this development process. A brief summary is given to shed some light on this issue from an academic viewpoint (the following part based on a comprehensive literature review done by Lu and Hong 2007).

In 1988 a teacher's competence was divided into the general didactic ability and education management ability; the former implies the ability to find and organize education materials and to express them, the latter implies the ability to offer education feedback and diagnosis. In 1993 a competence structure model was suggested based on a psychological perspective: the competence structure of a teacher was to be open and multidimensional, taking into consideration both general intellectual ability and education ability.

In 1997 Prof Ye of East China Normal University proposed teacher competence contain the following components: the ability to understand and communicate with others, to organize and manage, carry out education research, organize and transfer information, use various teaching methods and to accept information.

In 2000, some scholars regarded educational and didactic abilities to be the core of the teacher competence system. They went on to identify the basic learning ability as the major determinant of a teacher's long term development, monitoring and communicating with others to guarantee the application of other abilities and the ability to explore as the precondition for carrying out innovations.

The current competence models proposed by scholars lack empirical foundation at the moment and thus relate little to the actual situation in praxis. In the meantime discussions are largely conducted

on an individual basis and have little influence on teacher qualification nationwide. Thus the schools, including vocational schools mainly apply the legal requirements when recruiting new teachers.

4.3.7 Summary, reflections and implications

In summary, the text above described, the PTP programme for vocational school teachers in China is effective in general and the participating parties and individuals benefit from the programme. Vocational schools have integrated the new recruited teachers into their school in a reasonable time frame; teacher education institutions have found a way to make their students better candidates for a teaching career; teacher candidates or novice teachers improved their competences and become better prepared for teaching.

In terms of curriculum content, both PTP-1 and PTP-2 are strongly practice-oriented. No clearly defined curriculum structure of the programmes exists and the participants mainly learn in an apprenticeship style and an observation-imitation basis.

Regarding the participation rate, most teacher candidates and novice teachers take part in the PTP programmes. Aside from studying in the corresponding institution or being a teacher in a school, no special prerequisites exist for entering the programmes. To finish the programme successfully one must take part in the programme, write certain reports and accomplish some other tasks, such as video recording the teaching, filling in forms, etc., none of which are remarkably difficult.

In Shanghai the financing of both PTP-1 and PTP-2 presents no major difficulties. Special funds are sourced in teacher education institutions or government support. Some schools may have better financial resources than others, but no school interviewed has mentioned money problems. However, the situation in Shanghai cannot be generalized to represent other regions in China.

The key characteristics of PTP programmes in China are summarized in table 3, to illustrate their major features by comparison with PTP programmes in other countries.

Table 8: Comparison of PTP programmes

Comparison criteria	PTP-1	PTP-2
Goals of PTP/TVET philosophy	Familiaring university students (potential teachers) with TVET and teaching in vocational schools; Improve their practical skills	Foster the integration of novice teachers into vocational schools; Improve their practical skills
Policy/regulation	No clear policy/regulation yet on the government level; Schools and universities have their own rules and regulations.	
The concept/model of PTP	Divided into two phases; Apprenticeship; Practice-oriented	
Curriculum structure	No clear structure exists	
Effectiveness	Basically effective, but some constraining factors exist	
Degree of compulsory nature of PTP programme	Compulsory, but can be variable in different colleges.	Almost compulsory to have a mentor, but some programmes may only be available to a few teachers
Institutions & personnel involved	Teacher education institutions, vocational schools	Vocational schools

Comparison criteria	PTP-1	PTP-2
Financing	Special funding from the university	In part through special funding of government, as well as school budget

Despite the general effectiveness of the PTP programme, a few problems call for deeper investigation and consideration.

Firstly, the lack of a clearly defined curriculum structure and programme content can lead to great difficulty in quality assurance, management and evaluation. Teacher education institutions and vocational schools themselves largely determine the programme quality. The programme's contribution to individual participants depends heavily on the attitude and competence of individual instructors and mentors. Empirical work would be of great value for discovering the real effectiveness of the programme at an individual level. Based on this empirical work and appropriate academic design, a clearly defined curriculum could strengthen the programme's quality and management.

Secondly, the absence of policy and regulation at a government level increases the uncertainty regarding the programme's quality. The schools are alone when making decisions on the programmes and the intern's education rights are not always guaranteed. Students may be used as cheap work force in schools and have their education and training partially neglected. Better authority policy and regulation clearly stipulating the rights and responsibilities of all parties involved could provide much better protection for the students and maintain the programme's order and quality.

With a clearly defined curriculum and policy/regulation in place, the mentor would have less influence on the programme as a whole. Novice teachers would also be able to turn to alternative sources of guidance and support.

Thirdly, as mentioned above, the current Chinese education system's administrative structure and decision-making process could jeopardize the pertinence as well as the value of the programmes, as the major customers', the novice teachers' real demands cannot be fully appreciated by and communicated to the decision makers. A deal of administrative culture and structural reform is essential to change this situation.

4.3.8 Additional notes on industry training programmes for young teachers

Aside from the programmes introduced above, one additional programme in operation also deserves mentioning, even though it is not entirely appropriate to the title of this study.

The programme "Industry practice for young vocational schools teachers" (here referred to as IPT) is a programme initiated by the ministry of education setting out to promote the overall quality of vocational school teachers. According to the guideline set by the ministry of education, some companies (numbers of which vary from less than 10 to approximately 30) are assigned as practice centres for young vocational teachers in each province. Each company receives a number of young teachers from vocational schools. The overall purpose is to foster VET teachers' industry related skills (Ministry of Education China 2012).

However, the concrete programmes and training content have not been clearly stated; clear definition of "young teachers" is also not outlined in this programme; financing and the selection procedure is

also not mentioned. It is estimated that the ministry has funding specially allocated for the programme. Being a pilot project, the IPT programme is more or less in its exploratory phase. A more systematic approach is very likely still under development, but a lack of valid information sources other than online documents, do not clearly indicate the real direction the programme is heading.

4.4 PTP system in Germany

As in most states the education system in Germany has developed via historic development and the demands of a modern democratic society and cannot be described as a fully consistent and stringent system. What is detailed in this document describes some major issues and phenomena in the German system and can by no means be considered a comprehensive, all-embracing report.

Additionally, at the moment this sector is under high reform pressure, meaning that publications are easily outdated as laws, rules and regulations do not reflect adjustment, but actually a constant change process. As the OECD report noted, “*the development of the German education system is at a key turning point.*”¹⁸

There is no joint schedule for the reforms in the Länder¹⁹ nor are changes introduced at the same pace, hence, this paper can only provide a glimpse of the current situation, which is only 16-fold, if we are extremely lucky. Even within its own federal state the »Eignungspraktikum« or "practical suitability placement" introduced in North-Rhine-Westphalia (NW) in May 2009 as an indispensable special placement (integrated into the teacher training courses designed at producing fullyfledged teachers), is not valid in four of the state's own universities (Bochum, Bielefeld, Dortmund, Münster).^{20,21}

Furthermore, the focus here will not remain on just a single federal state but introduce significant elements of particular states.

The sensitive reader will see that the vocational education institutions are referred to constantly rather than vocational training institutions. The reason for this is that in Germany vocational education aims at providing not merely skilled workers but genuine professionals in full scope occupations.

4.4.1 Introduction of the education system and TVET teacher training system in Germany

Germany became a major Western European nation only after unification of its many states and principalities as late as 1871. The federal structure that exists in the present is inextricably rooted to the major historical determinants of its multi-regional origins that, in the course of a complex historical period, firstly culminated in the establishment of the Federal Republic of Germany in 1949. The reunification of East and West Germany in 1990, integrated East Germany's five so-called neue Länder (the five new states) to make up today's Federal Republic of Germany. Its 16 constitutive states (or Länder as they may be referred to in this text and its footnotes) and the national government share power in a balance that is maintained under constant development and adjustment.

¹⁸ P 7 in: Halász, G., *Attracting, developing and retaining effective teachers: Country note: Germany*. [S.l.]: Organisation für Economic Co-operation and Development, 2004.

¹⁹ Länder: genuine form of federal state in Germany. 16 of them make up the Federal Republic of Germany

²⁰ MSW, *Eignungspraktikum - das erste Praxiselement der neuen Lehrerbildung - MSW NRW: Zukunftsberuf Lehrer/in NRW*, 2012. <http://www.schulministerium.nrw.de/ZBL/Wege/Eignungspraktikum/> (accessed June 26, 2012). Last change of webpage Tuesday, 26. Juni 2012 05:04:03

²¹ “In spite of divergent requirements, teacher training results in a remarkably homogeneous style of teaching in the Länder as confirmed by student feedback” P. 22 in: Döbrich, P., Klemm, K., Knauss, G., and Lange, H., “Attracting, Developing and Retaining Effective Teachers: Supplement to the Country Background Report for the Federal Republic of Germany,” pp. 1–34, 2003 (accessed June 26, 2012).

4.4.1.1 Characteristics, peculiarities and essentials of the German educational system

The educational system in Germany is controlled by central government.²² However private educational institutions are in existence supervised by the state to guarantee the maintenance of quality standards.

At state level, the major legal framework of the German vocational education system lies in the "Berufsbildungsgesetz" which literally translated means the law for vocational training.²³ The German educational system and its vocational education system even more so, can be characterized by a combination of four unique descriptors.

The first descriptor compels one to point out the major characteristic of the German education system; that the federal states have full sovereignty in education²⁴, science, and culture. As a rule the German central government is limited to the promotion of science²⁵. Though some education tasks are shared between the federal states and central government, e.g. in higher education, the latter sets up the framework, founding laws, and actual building of universities while other legal issues remain solely under the sovereignty of the federal state. In terms of vocational education the central government is solely responsible for the legal frame of in-company activity (this will be explained in subsequent chapters)²⁶, however, all other aspects are strictly under the jurisdiction and control of the federal states. This includes having to meet all costs related to teaching staff. Such power allotted to the federal states leaves the local municipality with less influence.

Each federal state has its own government formed by the respective ruling political (whether liberal, conservative or progressive) party or a formed coalition between those content to form governmental alliance. Hence, objectives, approaches, and measurements in education differ significantly between the 16 states, contrasting or even conflicting. To take as an example Germany's secondary schools;²⁷ in some states eight, in others nine years of study are required before one can obtain a university-entrance-diploma (Abitur²⁸). Regarding the field of teacher training, in 2004 these multi-owner circumstances resulted in 40 teacher titles for six different teacher types in nine different types of vocational education institutions.²⁹

It is safe to say the federal system needs compensatory and equilibrating mechanisms. To guarantee comparability of degrees, assure quality and to safeguard full mobility for students, graduates and staff members, the "Kultusministerkonferenz (KMK) was established in 1949"³⁰ and the Bund-Länder-Kommission³¹ in 1970, that was required to hand a degree of its mandate and work to the Joint

²² Art. 7 Abs. 1 GG

²³ Passed in 1969; Main Reform passed in 2005

²⁴ Art. 30 GG

²⁵ The sovereignty of the federal states was confirmed and strengthened in the Föderalismusreform. In: Bundesgesetzblatt Teil 1; Nr. 41, 2006. Web. 26 Jun. 2012

²⁶ Art. 74 Ziff. 11 GG

²⁷ Gymnasium equivalent to grammar / secondary school

²⁸ School leaving exam and university entrance qualification (comparable to A-level in Britain)

²⁹ P. 34 in: Sandfuchs Geschichte der Lehrerbildung in: Blömeke, S., Handbuch Lehrerbildung. [Bad Heilbrunn]: Klinkhardt, 2004. <http://www.worldcat.org/oclc/231990352>.

³⁰ Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (Ständige Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland) Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany Translation Team, L.D., "LEO Forum", available at: <http://dict.leo.org/forum/viewUnsolvedquery.php?idThread=130963&idForum=1&lp=ende&lang=de> (accessed 22 June 2012).

³¹ Bund-Länder-Kommission for Educational Planning and Research Promotion (Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung) Bund-Länder Commission for Educational Planning and Research Promotion Translation Team, L.D., "LEO Forum", available at: <http://dict.leo.org/forum/viewUnsolvedquery.php?idThread=130963&idForum=1&lp=ende&lang=de> (accessed 22 June 2012).

Science Conference (Gemeinsame Wissenschaftskonferenz GWK) in 2008³². The mission of the KMK is “to work on educational (...) issues to reach a shared understanding and common ground besides fostering a mutual decision-making process and to take on joint representation for shared concerns”³³. This balanced and sophisticated system is completed by the stakeholder municipalities, which are responsible for financing the educational institutions’ non-personnel-costs.³⁴

The second unique descriptor is the two phases of teacher training, the first being mandatory at the university which has to be completed by a second post study phase at the vocational education institutions combined with elements at a Studienseminar (Teacher Training College³⁵)

The third unique descriptor of the German vocational system is the *modus operandi* of power exertion by the state. According to Greinert’s typology of vocational training systems, the German system can be categorized as unique for its market-oriented state-led dual system.³⁶

The fourth descriptor - the dual TVET education system, means vocational training takes place at two locations, in a training institution as well as in a company. This is still the prevailing form of training for occupations and trades in Germany though full-time education has gained momentum. The bundle of reasons leading to this conflicting development implies direct or even indirect criticism of the dual system.

Another important principle is compulsory education for nine or ten years (compulsory school attendance). This is extended by the part-time compulsory vocational school attendance³⁷ until the age of 18. E.g. in Baden-Württemberg after the nine year education another three years is added for compulsory vocational schooling, if the student is not attending one of the other school types e.g. secondary school.³⁸

Finally it must be noted that the fundamental concept of German education is based on educational equality³⁹ thus education is accessible to all. This means that most people in Germany regard fees as the most important, if not only indicator in this of equality and accessibility. All programmes and courses at public schools and colleges are offered without tuition fees. Even books for primary and secondary education are to be provided by the state and transportation to the educational institution

³² Joint Science Conference Translation Team, L.D., “LEO Forum”, available at: <http://dict.leo.org/forum/viewUnsolvedquery.php?idThread=130963&idForum=1&lp=ende&lang=de> (accessed 22 June 2012).

³³ P 1 in: Geschäftsordnung der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland gemäß Beschluss vom 19.11.1955 i. d. F. vom 02.06.2005 Kultusministerkonferenz. Rechtsgrundlagen: Ständige Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland (KMK). Web. 22 Jun. 2012. <<http://www.kmk.org/wir-ueber-uns/gruendung-und-zusammensetzung/rechtsgrundlagen.html>>. „Die Ständige Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland (Kultusministerkonferenz) behandelt Angelegenheiten der Bildungspolitik, der Hochschul- und Forschungspolitik sowie der Kulturpolitik von überregionaler Bedeutung mit dem Ziel einer gemeinsamen Meinungs- und Willensbildung und der Vertretung gemeinsamer Anliegen.“ Translated by author i.e. e.g.: complete equipment, learning aids, technical equipment, but even more e.g. costs for janitor, etc.

³⁴ i.e. e.g.: complete equipment, learning aids, technical equipment, but even more e.g. costs for janitor, etc.

³⁵ Translated Team, L. D. LEO Forum. Web. 22 Jun. 2012.

³⁶ Greinert, Wolf-Dietrich. The dual system of vocational education and training in the Federal Republic of Germany: Structure and function. 2nd ed. Stuttgart, Eschborn: Holland + Josenhans; Deutsche Gesellschaft für Technische Zusammenarbeit, 1995. Print. Other types are the market-oriented model, where the state has little or very low influence on the vocational training system, to which Great Britain is belonging to. The third type is the educational institution model, where the state is in full control, like e.g. in France.

³⁷ BIBB A1.2 Internetredaktion, last modified by: Schölgens, Charlotte (Administrator). BIBB / Working groups, 2012. Web. 23 Jun. 2012. <<http://www.bibb.de/en/29394.htm>>.

³⁸ Schulgesetz für Baden-Württemberg (SchG) in der Fassung vom 1. August 1983 (GBl. S. 397), C. Pflicht zum Besuch der Berufsschule (§§ 77-81)

³⁹ Bildungsgerechtigkeit

is also subsidized. This also applies to all occupations and trades under the »Berufsbildungsgesetz⁴⁰« that are studied for in Germany in public vocational training institutions.

4.4.1.2 Introduction of the vocational education system in Germany »dual education system«⁴¹

As mentioned before, education is in full sovereignty of the federal states. However, the in-company part of vocational training is centrally delegated to the »Bundesministerium für Bildung und Forschung« (BMBF) (Ministry of Education and Research), supplemented by the respective ministries responsible for adopting these regulations. The Federal Institute for Vocational Training (Bundesinstitut für Berufsbildung, BiBB) brings together the representatives of employers, trade unions, the federal states and central government. Further to which, it advises central government on all vocational training issues.⁴²

In 2011, 742,148 students commenced occupational training.⁴³ In 2008, two thirds of those between 20 and 29 successfully completed vocational training.⁴⁴ Students can be trained in one of about 350 (2012) training occupations (Ausbildungsberufe). These occupations are defined and agreed on in a unique way by all relevant stakeholders. The employers, the unions and vocational education experts cooperate under the leadership of the BiBB, all of whom are involved in the development of the respective curriculum frames.⁴⁵ At a regional level, the advisory functions, control and recognition of in-company vocational training are under self-administered organizations (chambers of industry and commerce, of crafts, of agriculture, etc.). At the training companies, the elected employee representatives are involved in the planning and implementation of in-company training as well as in the appointment of trainers.⁴⁶

Aside from this historically developed unique cooperation and collaboration of relevant stakeholders and the genuine exertion of power by the government, the term »dual system« means that vocational students in Germany are occupied in parallel learning at two locations. Firstly at the vocational education institution, manifested in nine different forms where they attend theoretical and practical teaching units. Nowadays these are not limited to basic manual skills, but geared towards actual working and production processes. This linkage to actual daily work, which we will see later, is a headache for many TVET teachers, particularly in high tech areas that feature a constant increase of knowledge and involve rapidly changing methods and processes.

In the companies, the students learn practice and theory and learn while working i.e. training-on-the-job in a real working environment, involving work-processes subject to authentic cost pressure and high quality demands. In larger companies, learning may be completed by training in apprentice workshops providing a kind of protected environment before entering fast, effectiveness and efficiency-oriented production lines. If needed, this dual system can be supplemented by education in

⁴⁰ Law on vocational education

⁴¹ Besides this system there are also some full time vocational training in Germany

⁴² Cf.: P 22 in: "Attracting, Developing and Retaining Effective Teachers: Country Background Report for the Federal Republic of Germany," OECD Activity, 2003.

⁴³ Cf.: P 49 in: Bundesministerium für Bildung und Forschung (BMBF), and Referat Grundsatzfragen der beruflichen Aus- und Weiterbildung. Berufsbildungsbericht 2012. Bonn, Berlin, 2012. Print.

⁴⁴ Cf.: in: Dionisius, Regina, Nicole Lissek, and Friedel Schier. Beteiligung an beruflicher Bildung: Indikatoren und Quoten im Überblick, 2012. Print. Wissenschaftliche Diskussionspapiere 133.

⁴⁵ Bundesinstitut für Berufsbildung, 53142 B. Ausbildungsordnungen und wie sie entstehen ..., 2006. Print. Schriftenreihe des Bundesinstituts für Berufsbildung Bonn.

⁴⁶ Cf.: P 22 in: "Attracting, Developing and Retaining Effective Teachers: Country Background Report for the Federal Republic of Germany," OECD Activity, 2003.

regional training centres, as industries producing for a highly competitive global market demand their employees understand and handle e.g. high tech production units and complex production processes. Equipment and devices cannot be slowed down or taken out of the daily production in these companies simply to facilitate learning at a lower level of complexity. Consequently, students' training is conducted at special regional training centres providing not only safe and appropriate learning, but also effective and cost-efficient implementation of sophisticated and expensive training equipment.

As a first step, unfortunately becoming increasingly difficult, the prospective student must find a company, acknowledged as a training institution, to get an indenture of apprenticeship⁴⁷ for an acknowledged occupation under the law for vocational training (Berufsbildungsgesetz). The duration is sometimes two, in most cases three, and in rarer cases up to three and a half years. The contract invariably has to be signed by the student's legal representatives, for the apprentice's age usually means they are not competent enough to understand contract terms.⁴⁸ This indenture of apprenticeship clearly states both parties' responsibilities. It contains many elements of a normal contract of employment (working time, vacation, probation time, abiding by company rules and regulations, conditions for resigning, etc.). This contract is subject to all regulations of social insurance and income tax. However, the major difference is that the sole objective of the contract is for both parties to agree on their efforts in achieving the educational and training goals. This becomes manifest in contract elements such as apprenticeship payment, objective of the apprenticeship, training outside the company, etc. The company has to fulfil several requirements (certified trainers with personal and occupational competence, a wide scope of tasks to be performed in the occupation, etc.) to become acknowledged, which is not directly determined by the state⁴⁹ but a *nota bene* supervised by the guilds and chambers.

The student is obliged to attend the training in the vocational training institution, while his training company is compelled to grant the time. The vocational education concludes with an exam in the presence of representatives of the guilds and chambers. The titles granted are later to be found e.g. in collective labour agreements. They can be the only legal bases for rightfully conducting specific, defined tasks. In some professions, employers have to hire a minimum number of employees with a defined degree to fulfil the requirements for (ISO) certification. Most of these degrees can be upgraded via further education to acquire the title master craftsman or artisan, which has been deemed equivalent to a Bachelor degree since 2012 according to the German qualification framework (Deutscher Qualifikationsrahmen).⁵⁰ The companies cover the costs for the training in the company. The costs for learning in the vocational institutions are covered by the state largely through taxes.⁵¹ Nonetheless the dual system has come under fire since the 1990s, due to global market demands and changes in German demographics. Some reasons for this may be found below, as a result some may be tempted to question why the German population, politicians, and the companies persist in backing this approach.

⁴⁷ § 10 Berufsbildungsgesetz (BBiG) Ausbildungsvertrag

⁴⁸ Coming of age in Germany with 18 years

⁴⁹ Only indirectly by passing laws and issuing rules and regulations for minimum quality standards

⁵⁰ Cf.: Arbeitskreis Deutscher Qualifikationsrahmen (AKDQR). "Deutscher Qualifikationsrahmen für lebenslanges Lernen: DQR." (2011). Web. 24 Jun. 2012. As still coming from two different systems they represent the same level but do not grant the same permissions. The title master craftsmen grants access to bachelor studies while the bachelor title grants access to master studies.

⁵¹ Exceptions e.g. the vocational training for nurses which is covered by the health insurance

It is highly probable that one factor is that the dual system reduces youth unemployment⁵² (Germany 8% compared to 22% EU average⁵³). It can also be traced to a long tradition in Germany rooted in the Middle Ages. It is typical of a strong welfare state, that the common political will is expressed through all parties resulting in a common social understanding that all stakeholders have the task to cooperate with the help of the state to guarantee a good work-oriented education. As Directorate for Education, Education and Training Policy Division of the OECD stated:

*“(...) a significant strength of the German system is its highly developed institutional framework for consultation, participation, and social dialogue. We were impressed by the level of activity and commitment of the various stakeholder groups, by their level of knowledge and understanding of education policy issues, and their willingness and capacity to express their views. There are not many countries where the business community shows a similarly strong commitment and participatory activity in the development and the management of education, and not only in the vocational education field.”*⁵⁴

Lastly and significantly, in economic terms it can be financially attractive for companies. It reduces recruitment costs significantly, as companies can review and appraise the prospective employee's performance including his/her individual and professional development throughout the duration of their apprenticeship. Hence, it is easy to select the best and most suitable candidates, that through their apprenticeship have learnt the companies' mission, code of conduct and specific *modus operandi* “from the cradle”. Furthermore, the training costs are less than those incurred training an unskilled worker by the company alone, as the state pays the theoretical training. Additionally, in the third trainee year the apprentice is able to create nearly the same amount of added value as a fully skilled worker at the lower apprenticeship salary. The German idea and concept of vocational training is not limited to acquiring skills for a job or competencies in specific skills, but in acquiring a bundle of competencies for a complete profession or occupation. This social common understanding of profession, creates bonds to the specific occupational thought-collective, and the profession's paradigms, is considered highly valuable. This is one of the factors that make German skilled workers more likely to develop in their field and become highly professional artisan. One may see here an inflexibility when applying for jobs in other trades, but only takes manual skills and specialized occupational skills into account, when in fact the broader basic qualification leads to a higher self-development competency.

Though the training is conducted in tandem with the training institution and the real work site, criticism stemmed from the idea that the two parallel learning locations would not cooperate sufficiently with each other. Worse still was the fear that the student would be left to find the solution for the so called »theory-practice-conflict« individually. This was taken up systematically, however, leading to the current approach of integrating and interlinking the two learning locations more intensely to obtain a higher outcome. At any rate this presents another challenge for TVET teachers.

⁵² Bundesministerium für Bildung und Forschung (BMBF), and Referat Grundsatzfragen der beruflichen Aus- und Weiterbildung. Berufsbildungsbericht 2012. Bonn, Berlin, 2012. Print.

⁵³ "Innovation Germany", The Newsletter of the German Center for Research & Innovation (GCRI) New York 25.04.2012 (18/05/2012): Key factors that have led to the success of the German vocational education and training systems. Interview with Prof. Dr. Friedrich Hubert Esser, Federal Institute for Vocational Education and Training (Bundesinstitut für Berufsbildung BIBB) President.

⁵⁴ P 26 in: Halász, G., Santiago, P., Ekholm, M., Matthews, P., & McKenzie, P. (2004). Attracting, Developing and Retaining Effective Teachers: Country Note: Germany. Organisation for Economic Co-operation and Development (OECD); Directorate for Education; Education and Training Policy Division.

The introduction of »dual Studies« in Baden-Württemberg in the mid-1990s having now spread to almost all of the federal states indicates how deep the dual training idea and concept is embedded within the German political system, society and mind-set and how it is held in high regard by employers' organizations. Dual studies exist in different forms. The essence lies in a logically consistent interlinking of higher education with authentic employment in the related occupation. One form of dual studies means students simultaneously acquire a full degree in an occupation and a full bachelor degree within three or maximum of five years. These students have an indenture of apprenticeship with a company and are paid an apprenticeship salary. The company grants the time for the studies. On the other hand, the students are obliged to work and learn in the companies. It is a win-win situation for the companies as well as the students. Companies have direct contact with scientific institutions and can integrate new approaches directly into their company e.g. via projects of the respective student. In addition, they obtain students not only trained in the occupation or profession, but also - throughout the study course – personnel that are systematically tailored to fit into their company. Furthermore the students get a monthly salary while studying and are well placed for being hired directly after graduation, with the disadvantage that they face a very arduous study situation.⁵⁵

4.4.1.3 Introduction to the second phase TVET teacher training system

There are three phases of teacher education in the literature and scientific discourse. The model here contains a first phase at university, a second phase in the PTP⁵⁶, continuing in the never-ending third phase of structured continuous professional development (CPDP) the essential element of lifelong learning.

Over the past ten years, the higher education system in Germany has undergone unprecedented major reform. It came about due to the EU creating a common education and employment market with full permeability and recognition of all higher education degrees as laid out in the Bologna declaration. The teacher education system came even more under reform pressure following results emerging from TIMSS⁵⁷ and PISA⁵⁸, in which German students were found particularly wanting. Teacher education had to be scrutinised and improved after such findings.

The introduction of the Bachelor and Master system was a major headache for the higher education system. Even to this day in Germany it is virtually unthinkable that a six-semester-study could lead to a full degree opening the job market. A Bachelor in Education will never be considered sufficient to obtain permission to work as teacher in public service. The degree may qualify the graduate for work in in-company training units, vocational counselling, etc. However, only a ten-semester course will permit access⁵⁹ to the PTP and teacher profession.

Currently it is not quite clear what kind of initial mode of studies will emerge from the restructuring of (TVET) teacher studies in the two-cycle Bachelor and Master form. At least three models⁶⁰ offering teacher education at university will be available however (see table 9).

⁵⁵ Wikipedia, ed. Duales Studium, 2012. Web. 24 Jun. 2012. Arduous because any redundancy is canceled. Anyhow as redundancy is one major issue in learning this leaves the repetition as sole task to the individual student alone.

⁵⁶ Post Study, Pre-Service Practical Training Programme (PTP) = second phase = Vorbereitungsdienst = Referendariat

⁵⁷ TIMSS = Trends in International Mathematics and Science Study; sometimes as Third International Mathematics and Science Study - TIMSS

⁵⁸ PISA = Program for International Student Assessment (PISA)

⁵⁹ KMK 2004

⁶⁰ Brünning, F., & Shilela, A. (2006). *The Bologna declaration and emerging models of TVET teacher training in Germany*. Bonn, Bonn: Inwent, Internationale Weiterbildung und Entwicklung gGmbH; UNEVOV.

The consecutive model is the prevailing one. It will be used as a prototype in this paper. In spite of the EU pressure higher education remains under sovereignty of the federal states responsible and thus under their sole jurisdiction. Rather than a single TVET teacher education in Germany there are 16 different ones as a result. Hence in this realm of education not only aforementioned bodies such as the KMK are involved, but the »Hochschulrektorenkonferenz« (HRK »German Rectors' Conference«)⁶¹ also has roles in organising higher education.

Reforms in higher education in Germany cannot be talked about without mentioning the holy grail of academic freedom. Though in schools the state tries to control each minute of teaching with meticulously itemised syllabi the university lecture theatre remains sacrosanct with all its advantages and otherwise. What the lecturers teach is to be grounded in their interpretation of the particular academic subject and in now guided by concepts of employability or the demands of employers that may be confronted after the university course.⁶² The state may set the norms to be hired, but it is up to the individual student to obtain them.

Table 9: Characteristics of three models of two-cycle Bachelor and Master TVET teacher education at university⁶³

Model	Characteristic	
	Bachelor	Master
Consecutive Model	<ul style="list-style-type: none"> • Three strands <ul style="list-style-type: none"> ○ Major ○ Minor ○ Vocational education / didactics 	<ul style="list-style-type: none"> • Three strands <ul style="list-style-type: none"> ○ Major ○ Minor ○ Vocational education / didactics
Top-Up-Model	<ul style="list-style-type: none"> • One strand <ul style="list-style-type: none"> ○ Major either technical or vocational 	<ul style="list-style-type: none"> • Three strands <ul style="list-style-type: none"> ○ Continue major either technical or vocational ○ Start new Minor ○ Vocational education & didactics
Blended Model	<ul style="list-style-type: none"> • Two strands <ul style="list-style-type: none"> ○ Major either technical or vocational ○ Closely linked minor ○ Separate module of vocational education and didactics 	<ul style="list-style-type: none"> • Three strands <ul style="list-style-type: none"> ○ Major ○ Minor ○ Vocational education / didactics

Table 10 shows an overview of teachers' education for different school types in Germany.

The »Mixed Commission on Teacher Training« has developed a teacher model which considers teaching to be the key task and core competency. Specific planning, organization and design of as

⁶¹ The German Rectors' Conference / Hochschulrektorenkonferenz (HRK) is a voluntary association of state-recognized higher education institutions. It has 267 member institutions representing 94% of student enrollments. It is the voice of the higher education institutions, their forum for the joint opinion-forming processes. (...) covering research, teaching, studies, technology transfer, etc. cf.: http://www.hrk.de/eng/hrk_auf_einen_blick/hrk_at_a_glance.php

⁶² Cf.: Trenchant and polemicized P. 186 in: Andreas Bergheim Anmerkungen zu Praxisphasen in der Ersten Phase der Nordrhein-westfälischen Lehrerbildung in: Óhidy, A., Terhart, E., and Zsolnai, J., eds., *Lehrerbild und Lehrerbildung: Praxis und Perspektiven der Lehrerbildung in Deutschland und Ungarn*, 1st ed. Wiesbaden: VS Verlag für Sozialwissenschaften; VS, Verl. für Sozialwissenschaften, 2007.

⁶³ Cf.: P 15-17 in: Brünning, F., & Shilela, A. (2006). *The Bologna declaration and emerging models of TVET teacher training in Germany*. Bonn, Bonn: Inwent, Internationale Weiterbildung und Entwicklung GmbH; UNEVOV.

well as reflection on teaching and learning processes are defined as the heart of the teachers' tasks. This is specified as "classroom teaching", "education", "diagnosis, evaluation, counselling" as well as "continuous professional development and participation in the organizational development of the institution school". It finds its manifestation in the »Standards für die Lehrerbildung: Bildungswissenschaften«. Here the reader may find the five major descriptors of teachers' tasks:

- Teachers are experts in teaching and learning
- Teachers are aware that the task of education in school is closely linked to the teaching and learning process and school life
- Teachers practice formal and summative assessment and counselling during class as well as for the further educational development of each student
- Teachers develop their competencies constantly
- Teachers participate in the organizational development of their respective educational institution

Table 10: Teacher education periods

Type	Designation Standard	study period (semesters)*	Preparatory service period (months) ⁶⁴
	General teaching careers at primary level and school types at lower secondary level	6 + 4 (Bachelor + Master)	18 - 24
	Teaching careers for upper secondary level (general education subjects) or for Gymnasium	6 + 4 (Bachelor + Master)	24
	Teaching careers for upper secondary level (vocational subjects) or for vocational schools	6 + 4 (Bachelor + Master)	24
	Teaching careers in special education	6 + 4 (Bachelor + Master)	18 - 24

In principle TVET teacher education in Germany follows the structures of the German general teacher education for secondary (grammar) schools. Teacher education specifics were developed due to the fact that all teachers, including TVET teachers, are classified as working in a higher level of the civil service and hence are subject to the civil service law which is in full sovereignty of each federal state. Therefore they conclude with a special exam the »Staatsexamen« [German state exam (degree level)]⁶⁵. This type of exam can be found in any education in which tasks have to be performed that are defined as being in public interest. These tasks require quality control carried out by the state exclusively. This is not restricted to higher education as e.g. the vocational training for nurses concludes as well with the »Staatsexamen«.

⁶⁴ Separate Regulation in each of the Länder

⁶⁵ According to KMK the degree "Master in Education" is equivalent to 1. Staatsexamen if the criteria are met which are listed in: Beschluss der Kultusministerkonferenz vom 02.06.2005. Eckpunkte für die gegenseitige Anerkennung von Bachelor- und Masterabschlüssen in Studiengängen, mit denen die Bildungsvoraussetzungen für ein Lehramt vermittelt werden: Eckpunkte für die gegenseitige Anerkennung von Bachelor- und Masterabschlüssen Lehramt, 2005. Print.

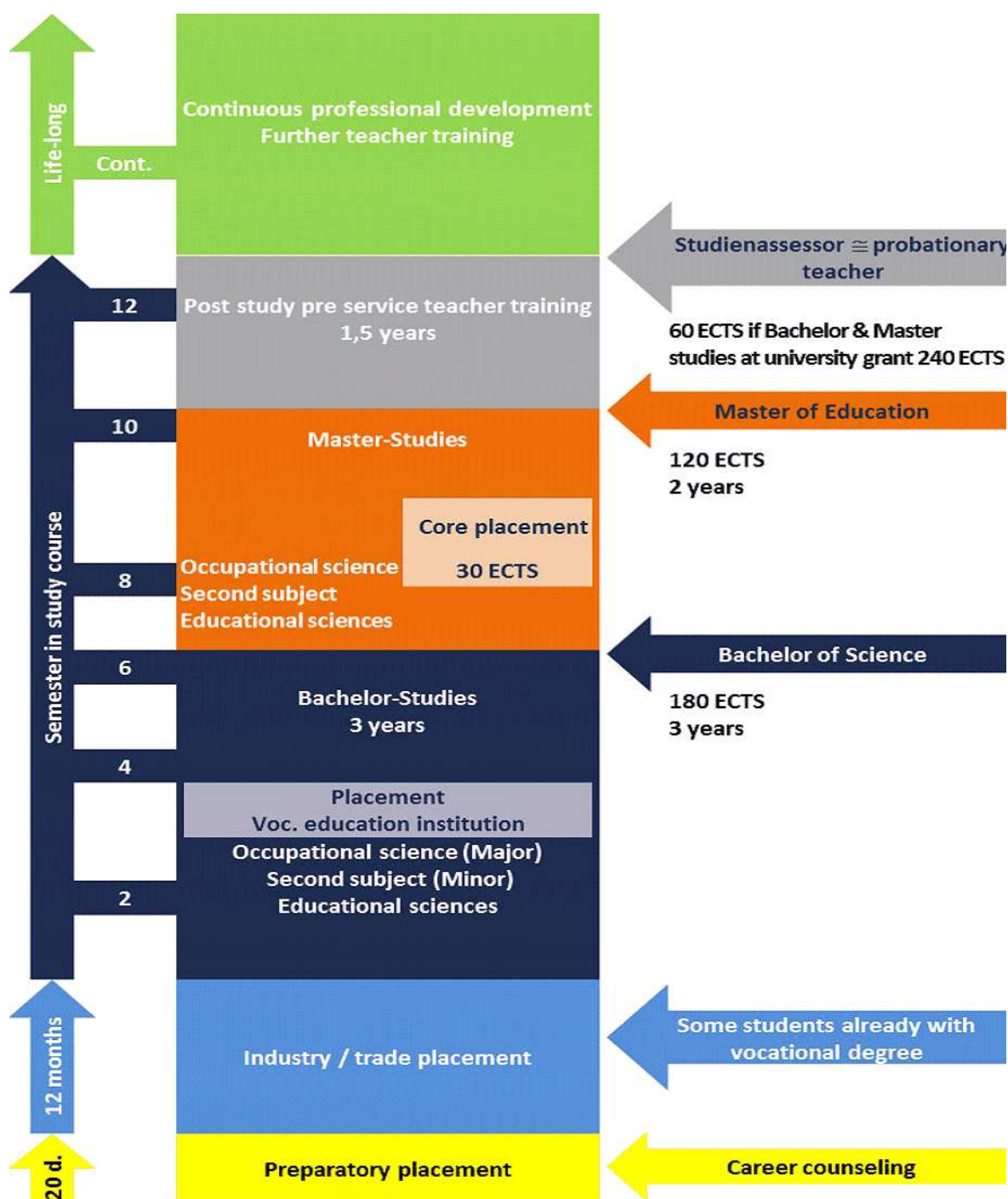


Figure 18: A prototype course of TVET Teacher education

It has to be stated that one phase can by no means be isolated from the other, as witnessed in figure 18⁶⁶. In this ideal typical depiction, you find a model taking reform measurements of the different federal states into one symbolic description of TVET teacher education and CPDP. It combines elements from Hamburg, Bavaria and NW. It was decided to combine these models in one illustration to show at a glance the main reform measures in Germany. The reader can see that the phases are no longer strictly separated. A path of increasing contact to the actual working place begins just before

⁶⁶ With the friendly permission excerpted, translated and extended from the presentation of Prof. Dr. Tade Tramm in Hamburg State Institute for Teachers' Training and School Development Thu. 01.03.2012

enrolment, continuing to placements in the Bachelor studies, increasing even more in the Master course, to end finally in the ultimate guided workplace exposure of PTP. This approach unites all the federal states and is the same for any teacher type. This was reiterated insistently in 2008 by the KMK and HRK⁶⁷ which decided that universities are free to offer study courses which grant 60 ECTS for the PTP to be added on a Bachelor with the consecutive Master of 240 ECTS, making the PTP an integral and genuine part of the study course. The German accreditation agencies were requested to accredit study courses of this design.

To obtain access to any studies at university the candidate must have passed his/her Abitur⁶⁸ (university entrance exam or equivalent graduation from secondary education⁶⁹). In TVET teacher education in particular a significant number of enrolees have already obtained a degree from a vocational education institution. In some of the federal states (e.g. NW) a placement in a vocational education institution has to be completed to ensure the perception of the teaching profession is commensurate with the student and societal perspective and that of the teacher's and that the profession is actually worth studying for over a period of six years and six months. In a few of the federal states, an additional 12 Months placement in the industry or trade is required, recommended, and encouraged before enrolment in the first phase and becomes at the very least mandatory for access to the second phase.

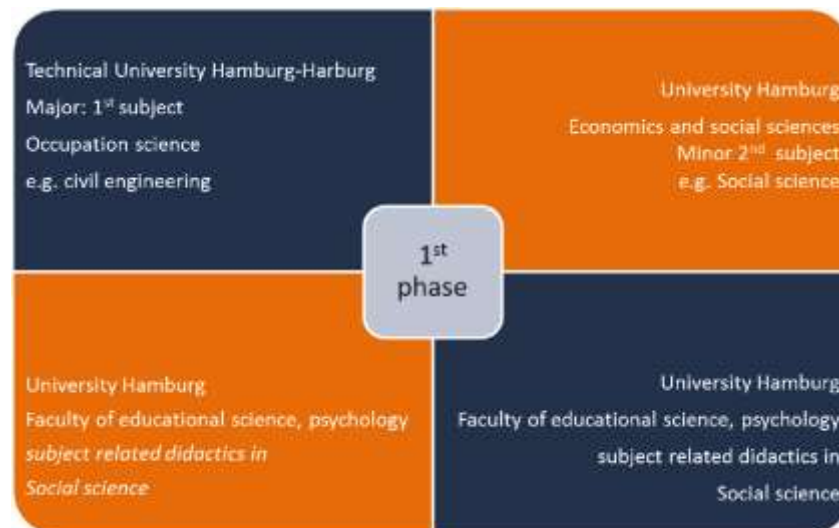


Figure 19: Example of the state of Hamburg for TVET Teacher in civil engineering as major and social science as minor

The first phase takes place at a university and focuses on the acquisition of a sound scientific knowledge of the occupation, subject specific-didactics, and the corresponding pedagogic domains. The student usually takes courses in one major subject i.e. in the occupation and one minor subject e.g. a general education subject complemented by studies in pedagogical science. A third subject can occasionally be added. These major and minor subjects include courses in selected basic corresponding scientific disciplines e.g. statistics, mathematics, physics, etc. Additionally the student is to enrol

⁶⁷ KMK und HRK, "Empfehlung der Kultusministerkonferenz und der Hochschulrektorenkonferenz zur Vergabe eines Masterabschlusses in der Lehrerbildung bei vorgesehener Einbeziehung von Leistungen des Vorbereitungsdienstes: KMK-HRK-Empfehlung_Lb_gehob-Lehrämter_12-06-08_08-07-08.doc," 2008 (accessed July 10, 2012).

⁶⁸ School leaving exam and university entrance qualification (comparable to A-level in Britain)

⁶⁹ See above description of master craftsmen

in courses for subject-related didactics and general pedagogy. In many universities, the quota of occupational, scientific, and subject-oriented didactics to pedagogy⁷⁰ is from 75:25 up to 95:5 at the expense of pedagogy.

The challenge of this study course is that the “content” of the occupational and its corresponding sciences easily becomes predominant to the at least minimum important learning outcome, i.e. that the teacher student has to acquire a sound reflective capacity. This is demonstrated by being scientifically competent enough to make decisions and provide the reasoning for them. In professional teaching this competency will gain major importance e.g. in the self-analysis capacity fostering professional development justifying selection of content and mode of delivery for teaching while striving to facilitate the TVET-students’ achievement of the learning outcomes as inscribed in the curricula. The emphasis on science is safeguard for the teacher to be able to refer every aspect of his teaching practice to the scientific principles of the 1) occupation, 2) the corresponding sciences 3) the subject related didactics and 4) pedagogy. The studies are finalized after 10 Semesters by an exam “erstes Staatsexamen” [first German state exam (degree level)]⁷¹. Passing this exam is the condition sine qua non for access to the second consecutive phase that has a duration of one and a half to two years, and is ultimately necessary in becoming a fully-fledged teacher.

The second phase lays emphasis on applying the more or less theoretical knowledge of phase one. It may be seen to be a guided introduction to the profession by the vocational education institutions and the teachers' training college (Studienseminar). It is nota bene of a non-university institution though the personnel are academic and individually often linked to university or even in some cases to vocational education institutions. This split consecutive subsequent two-phase approach in its pure form, which is vanishing due to new scientific insights, could be described as a concept, that follows the categorical difference between knowledge and application as it is acquired consecutively. Here the university graduate must attend education units at the teacher training college (Studienseminar) that are combined and interlinked with training and teaching (training-on-the-job) at a vocational training institution. Entering the second phase requires a position at a vocational education institution. Therefore the graduate has to find an educational institution willing to sign a public service contract constituting a kind of indenture of apprenticeship in public service (Beamtenverhältnis auf Widerruf = non-life-long public servant). Thus, it became a legal issue and it was clearly decided that passing the first Staatsexamen guarantees the undeniable right to enter the second phase whereas a waiting list was introduced consequently.

The graduate is assigned to a teachers training college (Studienseminar) in tandem. While working with a reduced teaching load at the vocational training institution the trainee is guided by special lecturers of the seminar and mentors. A continuous process of observing teaching units of experienced colleagues, being observed in lectures under full responsibility of the trainee, counselling and testing finally leads to the “zweites Staatsexamen” [2nd German state exam (degree level)]. As a result this elaborate and time consuming system ensures German vocational students will not be confused and consider a fresh teacher as one of their own age group as e.g. in North-Rhine-Westphalia in 1995 the average age of a fully-fledged novice teacher was 34 years!⁷²

⁷⁰ Pedagogy is used as overall term for all subjects related to learning (e.g. including andragogy, etc.)

⁷¹ Currently we have a transition period hence it is not yet decided whether the term will be definitely changed to Master.

⁷² The average age of the TVET teacher in NRW in 2006 was 47,3 in general school 46,3 years.

4.4.1.4 Teacher types at vocational education institutions

The vocational system, comprises different types of teachers, mainly the theory teacher (Studienrat / Oberstudienrat / sometime Studiendirektor⁷³) and the practice teacher in a manner equivalent to technical instructors (Fachlehrer or Werkstattlehrer). Aside from this access, many paths for career changes were opened, caused by the extreme demand for TVET graduates in MINT⁷⁴ subjects when not being able to hire enough TVET teachers in these areas. On the one hand, this great need has been a result of the age-pyramid in the faculties due to many staff members hired during the great education expansion of the 1970s, retiring today. On the other hand the demand of industries for the most competent TVET graduates, specifically in high tech branches, is on the increase, as they are most suited to export-oriented German industries. Graduates of engineering subjects or other occupations that suffer from a shortfall of expertise become TVET teachers upon completing pedagogical training. For the most part they become highly valuable members of their faculties.

The second major teacher type is mainly master craftsmen. These teachers, here not addressed as trainers, teach practical vocational knowledge, skills and abilities mainly at full time vocational education institutions. They possess a master artisans' diploma and have several years of practical experience in industries or trades. They acquire a pedagogical certificate during one and a half years or a two year preparatory service for civil servants on probation. The students at the vocational training institutions estimated them highly as these teachers are most likely to combine practical aspects with the minimum of theory up to the applied level. Even these experienced craftsmen may still teach applied theory sometimes even to a significant higher level. Unfortunately though »hands on« in Germany is a major imperative, the primacy of theory over practice perseveres in the mind of university representatives and decision-makers, who regard the craftsmen's competencies to be inferior to those of theory teachers and this outdated manifestation is represented by the salary scale.⁷⁵

As with many other countries, in Germany most teachers are not educated generally, but rather for the specific school or college type they are supposed to work at. In Bavaria, for each school type there is a specific teacher type, whereas in North-Rhine-Westphalia, at least a few teacher types share the same basic education. This paper does not concern itself with these last two types of teachers but focuses only on the theory teacher for the vocational training institution.

4.4.2 The implementation of post-study pre-service practical training programme

4.4.2.1 Basic conditions

The post study, pre-service practical training programme (PTP) [= second phase] for TVET teacher candidates has more than one strand of development in Germany. Here is just a random collection of some. As early as 1779, while teaching pedagogy in Halle, Prof Christian Trapp introduced visits and observations of his teacher students upon postulation that knowledge and intention is not the

⁷³ Cf.: p 23 in: Halász, G., Santiago, P., Ekholm, M., Matthews, P., & McKenzie, P. (2004). *Attracting, Developing and Retaining Effective Teachers: Country Note: Germany*. "In (...) vocational education institution, teachers will be promoted to Oberstudienrat ("head study advisor") inevitably [sic!] after a few years of service conditional on satisfactory performance. The promotion to Studiendirektor ("study director") involves special duties such as head of department (subject coordinator)."

⁷⁴ Mathematics, Informatics, Natural sciences and Technics

⁷⁵ See statements by Dr. Hans-Jürgen Lindemann, Senatsverwaltung für Bildung, Jugend und Wissenschaft II G Fb 1 Berlin LISUM during the RCP guided study tour on Mon. 27.02.2012 at Martin-Wagner-Schule (OSZ Bautechnik II), Berlin, Germany.

same as application.⁷⁶ By the end of the 18th century a kind of pre-service year was added to studies in Prussia that included some core elements of current PTP. After its discontinuation in the Third Reich, this second phase was re-introduced into teacher education with the founding of the Federal Republic of Germany.

Nonetheless though changes will always be introduced due to reform pressure, the idea of abolishing the second phase has never been on the agenda. This was one of the main recommendations of the “Gemischte Kommission Lehrerbildung” (Mixed Commission on Teacher Training) founded by the KMK in 1998. Aside from this group, the majority of experts and political decision-makers in Germany remain pledged to the two-phase system. This is supported by the OECD (2004)⁷⁷ as mentioned in the study *ATTRACTING, DEVELOPING AND RETAINING EFFECTIVE TEACHERS* postulating this period helps to effectively introduce trainees to their new profession. By no means disposable, it is yet subject to reform measures, recommending the first phase of university studies appreciably more practice oriented.

Thus one major reform trend is getting phase 2 elements into phase 1 and right from the start inter-linking real teacher tasks and teaching processes to the scientific education at the university. This is evidenced by a further recommendation by the Commission proposing to exchange the educational staff of both phases with well-directed purposeful indenting and interlinking of the two periods.⁷⁸ This is substantiated by professionalization concepts, pointing out that the phase of introduction to a profession in the real work setting is the major predictor for the level of professionalism in future⁷⁹. Consequently in Hamburg students have close contact and even teach at the vocational training institutions, under supervision, in the first, the second (4 weeks) the sixth, the 8th (1 day per week) and 9th semester (2 days per week!). These visits and placements are then reflected in the university. Aside from these reasons the following justifications also favour retaining the second phase.

Particularly directly after graduation teachers strive to and »know theoretically« they should use a student-centred teaching style and refer the learning content to the industrial processes. However it is well documented that, overwhelmed by the daily task of teaching, teachers end up relying on the tried and tested and revert to teaching in the »well established way definitely proven to be effective and efficient«. This means the way in which they were taught at the university perseveres. In the natural science this has a strong focus on “lecturer centeredness”. This is amplified for prospective TVET teacher study in the related sciences as a subgroup of »normal« students in the respective natural science or engineering field (e.g. civil engineering). Thus, they will have to follow the thought collective of this specific science and the objective of the programme, which strives for those students to become best engineers or natural scientists. Frequently subject related didactics are not sufficient preparation for the real teaching challenges compared to proximity with the occupational science.

⁷⁶ Sandfuchs, Uwe. “Geschichte der Lehrerbildung in Deutschland.” In: Handbuch Lehrerbildung Blömeke, Sigrid. [Bad Heilbronn]: Klinkhardt, 2004. Print. 14–37. Print.

⁷⁷ P 28 Halász, G., Santiago, P., Ekholm, M., Matthews, P., & McKenzie, P. (2004). *Attracting, Developing and Retaining Effective Teachers: Country Note: Germany*. Organisation for Economic Co-operation and Development (OECD); Directorate for Education; Education and Training Policy Division

⁷⁸ Prof. Dr. Ewald Terhart, and Ewald Terhart. *Standards für die Lehrerbildung - Eine Expertise für die Kultusministerkonferenz // Perspektiven der Lehrerbildung in Deutschland: Abschlussbericht der von der Kultusministerkonferenz eingesetzten Kommission*. Weinheim [u.a.]: Beltz, 2000. Print. Other recommendations were: orienting the modules of core curricula aiming at enabling students to explore industry-specific fields of work, testing of centers of excellence for teacher training, introduction of research based subject related didactics, etc.

⁷⁹ Terhart, E.: *Struktur und Organisation der Lehrerbildung in Deutschland*. In: Handbuch Lehrerbildung. Hrsg.: S. Blömeke/P. Reinhold/G. Tulodziecki/J. Wildt. Westermann, Braunschweig 2004, S. 37- 59.

Furthermore, they are graduates of engineering disciplines - the so called »hard« category of disciplines.⁸⁰ Teachers belonging to a »hard« and »applied hard« discipline scored significantly higher on the teacher-focused scale of the *Approaches to Teaching Inventory*.^{81,82}

Secondly, self-efficacy beliefs used as predictors, are one of the most significant factors in generating a successful teaching and learning situation. The “practice shock” at the beginning of work can diminish the novice's self-efficacy beliefs. Consequently, the education system has to guarantee coaching during the first steps to implement new teaching methods in the classrooms. Even more necessary is that the teachers training is on-going, as “no increase nor decrease in approaches to teaching (...) occurs, if teachers do not continue their studies.”⁸³

This so-called practice shock is more intense when the teacher trainees are not from an occupational background, but have come from the delivery room via the schoolroom and lecture room directly to the vocational classroom. This is further intensified as aspirant teachers are likely to come from a middle-class, academic background. They will be confronted with a specific and usually unfamiliar and unknown social group of TVET-students, people educationally disadvantaged or less intrinsically motivated. Unfortunately the education system in Germany is not as permeable as wished. The connection between performance and social background is higher in Germany and the education system more socially selective. Attending a secondary school is far more likely for children from upper strata than those of lower ones. Moreover, support for children of immigrant families has proved less successful than in other countries⁸⁴. Aspirant teachers are more likely to be from a different social stratum of German society than those they will be teaching in the vocational education institutions.

4.4.2.2 Policy and regulations

As stated before in each federal state the respective government passes the laws and regulations regarding the field of education. Generally, it can be stated, “*Following the successful completion of the first phase examinations, students are entitled to have access to the preparatory phase, but immediate enrolment is not guaranteed as it is subject to the availability of places at the training institutes where it is undertaken*”⁸⁵.

After the successful completion of the second phase, teachers – like any other civil servant – must prove themselves during a probationary period of two years. If they are a minimum of 27 years of age, they are appointed for life.⁸⁶

⁸⁰ Categories: pure hard (e.g., chemistry), applied hard (e.g., medicine), pure soft (e.g., history) and applied soft (e.g., education). According to Bloom

⁸¹ Nevgi, A., Postareff, L., & Lindblom-Ylaenne, S. (June 18–21, 2004.). The effect of discipline on motivational and self-efficacy beliefs and on approaches to teaching of Finnish and English university teachers.

⁸² Lindblom-Ylaenne, S., Trigwell, K., K., Nevgi, A., & Ashwin, P., How approaches to teaching are affected by discipline and teaching context. *Studies in Higher Education*, 31, 285–298.

⁸³ Cf.: P. 41 in: Postareff, L., Lindblom-Ylaenne, S., & Nevgi, A. (2008). A follow-up study of the effect of pedagogical training on teaching in higher education. *Higher Education*, (56), 29–43.

⁸⁴ Cf.: P. 7 in: Döbrich, P., Klemm, K., Knauss, G., and Lange, H., “Attracting, Developing and Retaining Effective Teachers: Supplement to the Country Background Report for the Federal Republic of Germany,” pp. 1–34, 2003 (accessed June 26, 2012).

⁸⁵ Cf.: P 16, in: Halász, G., Attracting, developing and retaining effective teachers: Country note: Germany. [S.l.]: Organization for Economic Co-operation and Development, 2004.

⁸⁶ Cf.: *ibid*.

4.4.2.3 Infrastructures

The teachers training college (Studienseminar) to which the aspirant teachers are seconded to are spread over each regional state, mostly due to historically developed governmental structures and districts. Unfortunately, the teacher training college districts (Studienseminar) do not have an equal share in means of aspirant teachers, staffing and vocational education institutions.⁸⁷ In Bavaria for instance redistribution and allocation of resources by changing the respective shaping of the districts to a balanced and need-based mode has proved to be one measure that has increased quality.

4.4.2.4 Parties and institutions involved in PTP

As noted, the first phase is provided at autonomous universities, whereas the responsibility for phase 2 is shared between vocational education institutions and the teacher training college (Studienseminar) which is organizationally accountable. These institutions cooperate and collaborate closely. They are subordinate to the ministries of education and cultural affairs in the federal states, which exercise final supervision via the district councils.

The following institutions are involved in the PTP. Their specific responsibilities will be outlined in the next chapter.

- Bezirksregierung (District Council)
- teachers' training college (Studienseminar) now becoming known in NW for instance as:
»Zentren für schulpraktische Lehrerbildung in NW«⁸⁸
- vocational education institutions and
- universities.

Phase 1 and 2 will be integrated and interlinked to a higher degree, as mentioned above. Students will be exposed to the vocational education institution before enrolment, for one complete semester during the Bachelor and in the Master phase. Its first, longer manifestation takes place in the second phase, before finally becoming a fully qualified teacher.

4.4.2.5 Personnel

Personnel involved⁸⁹

The following people are involved in the PTP. Bavaria is taken as the example:

- Seminarvorstand (seminar leader / leading lecturer)
- Seminarlehrer(lecturer of teacher training college)
- Betreuungslehrer (tutor of vocational education institution)
- Modulanbieter(free consultant)
- Mentoren (mentor from the university)
- Schulleiter (headmaster/principal at the vocational education institution)

⁸⁷ Cf.: P 9; in: Bayerisches Staatsministerium für Unterricht und Kultus, „Kooperation, Koordination, Kommunikation“ - Reform der Lehrerbildung an beruflichen Schulen 2011: Strukturelle und inhaltliche Reform der 2. Phase, 2011 (accessed June 26, 2012).

⁸⁸ How fast things are changing is indicated e.g. in NW. Though the Title already changed to Zentren für schulpraktische Lehrerbildung in NRW, the by-laws still use »Geschäftsordnung der Studienseminare für Lehrämter an Schulen«

⁸⁹ cf.: Bayerisches Staatsministerium für Unterricht und Kultus, „Kooperation, Koordination, Kommunikation“ - Reform der Lehrerbildung an beruflichen Schulen 2011: Strukturelle und inhaltliche Reform der 2. Phase, 2011 (accessed June 26, 2012).

Table 11: Tasks of persons and institutions in PTP

Person	Task / major focus of work ⁹⁰
Seminarvorstand (seminar leader / leading lecturer)	<ul style="list-style-type: none"> • Primary superior • Represent and maintain the major pedagogical direction • Continuously check whether the current approach meets the needs • Continuously check its implementation • Pedagogical guidance and evaluation of <ul style="list-style-type: none"> – Seminarlehrer – Betreuungslehrer – Modulanbieter • Responsible for further training of <ul style="list-style-type: none"> – Seminarlehrer – Betreuungslehrer – Modulanbieter • Responsible for contact to the linked vocational education institutions and transfer of results to all stakeholders • Responsible for adequate number of assessments of demonstration lesson
Seminarlehrer (lecturer in Teacher Training College)	<ul style="list-style-type: none"> • Supervising of trainees in the first phase of the PTP • Guiding specific methodology for each subject • Gives insight on actual teaching approach in daily work and forms of pedagogy • Organize the vocational education institution in consultation with the principal <ul style="list-style-type: none"> – Counselling especially for teaching trials – Observation – Guided teaching of trainees – Autonomous teaching of trainees – Participation of trainees in teacher conferences and other school events. – Company/industry visits – Monitor trainees – Advise trainees on choice of study topics for written assignment • Guiding of vocational education institutions to adhere to standards in assessment of trainees demonstration lesson
Betreuungslehrer (tutor in vocational education institution)	<ul style="list-style-type: none"> • Supervising trainees in second phase of the PTP • Counsel the vocational education institution principal in definition of specific assignments for the particular trainee • Organize options for trainee to observe experienced teacher colleagues • Counselling in planning and preparation of teaching units • Observation of and feedback to teaching units of the trainee • Organize participation of trainees e.g. in teacher conferences, parent-teacher conference, etc. support independent carrying out of such events • Introduce the trainee to any aspect & facility of the vocational education institution
Modulanbieter(consultant)	<ul style="list-style-type: none"> • Consultants/lecturers for advanced seminars; topics determined by the Seminarvorstand (seminar leader / leading lecturer)
Mentoren (mentor from the university)	<ul style="list-style-type: none"> • Guiding trainees in the directions of the university • Involved in research and lecturing
Schulleiter (headmaster/principal at the vocational education institution)	<ul style="list-style-type: none"> • Grant open space for teaching and other trainee activities • Exchange of information with Seminarvorstand (seminar leader / leading lecturer) • Chair the teaching exams • Teach topics beyond the scope of vocational education institutions' administration
Bezirksregierung (District Council)	<ul style="list-style-type: none"> • Responsibility in exams like chairing etc.

Handing over trainee

No incentive
besides
honour!

At the teachers' training college (Studienseminar), administrative staff and mainly teachers (Studiendirektoren⁹¹) are responsible for specific subjects. Aside from these tasks such as tried and tested, highly experienced teachers often work as part time teachers in their respective education

⁹⁰ cf: Bayerische Staatsregierung, Verkündungsplattform Bayern: Richtlinien für das Berufspraktikum im Rahmen der Ausbildung für das Lehramt an beruflichen Schulen: 2038.3.5-UK; Az. VII.2-5 S 9025-7.86 169, 2010. <https://www.verkuendung-bayern.de/kwmbi/jahrgang:2011/heftnummer:1/seite:8> (accessed June 26, 2012).

⁹¹ The promotion to Studiendirektor ("study director") involves special duties such as head of department (subject coordinator). Posts as Studiendirektor are limited in number, require an open competition and imply an evaluation of teachers.

institution type. The mentors usually get brief training (in Hamburg ca. 50 TU) in preparation for taking on the task.

4.4.3 Curriculum for PTP

4.4.3.1 Duration in general

As mentioned above the duration of this second phase depends on the type of school the teacher is trained for and the federal state he is studying in. The range is 18-24 months and is evenly distributed over three or four parts.

During this phase the aspirant teacher has to participate continuously in teaching units offered at the teachers' training college (Studienseminar) and fulfil a full-time job (38.5 hours per week equivalent to 1,770 hours per year) with a reduced teaching load (core phase 12TU/week⁹²) at the vocational education institution.

Due to the pressure to reduce the education time for TVET teachers in Hamburg for instance the duration of this second phase can be reduced⁹³ to 18 months in recognition of experience corresponding to the respective occupational field.

The aspirant teacher must participate in the advanced seminar (Hauptseminar), Fachseminar 1 and 2 (subject oriented expert seminar), the mandatory and compulsory optional module, and the education unit teachers' training.

Aside from all that, they have to sit in on teaching units taken by experienced colleges in their vocational education institution, advise students, take part in exams, work on vocational education institutions' projects, teach under supervision and guidance, etc.

4.4.3.2 Detailed time allocation in the second phase

Table 12: Detailed time allocation PTP⁹⁴

Study part	Time allocated	
	Presence hours	Self-studies hours
Advanced seminar (Hauptseminar)	66	54
Fachseminar 1 (subject oriented expert seminar)	48	33
Fachseminar 2 (subject oriented expert seminar)	48	33
Teacher training	27	
Mandatory Module	28	
Compulsory Optional Modules	32	

These hours are to be considered average as, in the first part of the PTP; these advanced seminars (Hauptseminare) are conducted in a weekly, later biweekly rhythm.

In Hamburg, the PTP is split in three phases.

- Starting phase

⁹² Full teaching load TVET 23-27 TU/week equivalent to 38,5 h/ week equivalent to 1770h/ year

⁹³ P 1 in: 2012. <http://li.hamburg.de/contentblob/2819234/data/pdf-aktueller-wegweiser-fuer-referendarinnen-und-referendare.pdf> (accessed June 27, 2012).

⁹⁴ Cf.: p 9 in: Landesinstitut für Lehrerbildung und Schulentwicklung. (2012). Wegweiser für Referendarinnen und Referendare 2012. Retrieved from <http://li.hamburg.de/contentblob/2819234/data/pdf-aktueller-wegweiser-fuer-referendarinnen-und-referendare.pdf>

- Core phase
- Exam phase

The table below gives the allocation of presence training hours for each learning location.

Table 13: **Time allocation in PTP according to learning location**⁹⁵

Phase	Teacher Training College (Studienseminar) (h/week)	Vocational educa- tion institution teaching (TU/ week)	Vocational educa- tion institution other tasks (h/week)	Total / week
Starting phase	15h	0h	9h	24h
Core phase	7h	12h	5h	24h
Exam phase	10h	0h	14h	24h

4.4.3.3 Structure and contents of curriculum

The following subchapters are taken from the Wegweiser für Referendare.⁹⁶

Starting phase

The starting phase opens space for reflection and instantly prepares the aspirant teacher to take on his/her own responsibility. In the vocational education institution, the aspirant teacher conducts lectures under the supervision and guidance of mentors. In teacher training institutions (Studienseminare), the aspirant teacher participates in a module for two weeks solely for structured observing, planning conducting, and evaluating of teaching units. This is supplemented by portfolio work. Here everyone works on the own learning process under a scientific perspective. This is the basis for meetings, consultations and counselling by mentors, tutors and other educators. It might even be used for written assignments or included in the oral exam at the end of the PTP.

Core phase

In the core phase, the aspirant teacher will have to shoulder the reduced working load of 12 hours of self-dependent teaching per week. They will only have to attend four compulsory optional modules at the teacher training institutions [no other regular training units at the Studienseminar!].

Exam phase

In this three month phase, the aspirant teacher has no teaching obligations at the vocational education institution. Aspirant teacher must perform two demonstration lessons, one in each of the subjects, supplemented by their written assignment and concluding an oral exam. The aspirant teacher is free to attend training units at the teacher training institutions (Studienseminare).

⁹⁵ Cf.: p 9 in: Landesinstitut für Lehrerbildung und Schulentwicklung. (2012). Wegweiser für Referendarinnen und Referendare 2012. Retrieved from <http://li.hamburg.de/contentblob/2819234/data/pdf-aktueller-wegweiser-fuer-referendarinnen-und-referendare.pdf>

⁹⁶ Landesinstitut für Lehrerbildung und Schulentwicklung. (2012). Wegweiser für Referendarinnen und Referendare 2012. Retrieved from <http://li.hamburg.de/contentblob/2819234/data/pdf-aktueller-wegweiser-fuer-referendarinnen-und-referendare.pdf>

General information regarding contents

The competency “teaching”⁹⁷ can be broken down into “classroom teaching”, “education”, “diagnosis – evaluation – counselling,” and “further development of professional competency and school”. These aspects will be covered in seminars and in the practical field as well.

Major topics in the »advanced seminar (Hauptseminar)« are pedagogical-psychological issues. The following areas of competencies are covered in the curriculum of the advanced seminar (Hauptseminar) - here taken from Hamburg⁹⁸. Each of these realms is further broken down in terms of content and allocated with clear content for each of the three PTP phases. The aspirant teacher has to cover the following fields of competencies:

1. Designing, arranging and organization of education and assessment.
2. Working, practicing and acting with self-confidence in the vocational education institution backed by a sound knowledge of legal issues and rules and regulations.
3. Acting with clarity in the role and self-concept based on theoretical insights gained from self-reflection. This could be described as: γνῶθι σεαυτόν (*gnōthi seautón*)⁹⁹ of the individual professional in the role of TVET teacher.
4. Competency in teaching and education (initiating, facilitating, steering, guiding of learning processes; using information technology; Ability to summarize and recapitulate, saving results, securing findings, rules and rituals to foster a well-regulated and orderly course of teaching units, etc.) this includes topics like communication, media, ICT literacy, etc.
5. Assessment and evaluation including summative and formative feedback and grading; designing of different suitable forms of assessment, etc.)
6. Working with and in small and larger groups (teambuilding, forming, storming, conflict transformation, motivation, etc.)
7. Integration in the organizational development process at the vocational education institution

Furthermore the aspirant teacher has to teach in all kind of learning groups (educationally disadvantaged students, groups with a high heterogeneity demanding skilful internal differentiation and tailored approach for instance.). Close cooperation and collaboration with those responsible for the in-company part of the training; ability to interlink vocational practice with the theory taught in the classroom in the vocational education institution

In the Fachseminar (subject oriented expert seminar) subject related didactics are the main concern. In Hamburg, they will have 5 periods of modules for each subject, which can be selected by the aspirant teacher. Focus is on the Handlungskompetenz ([operational] competence / skill and abilities) of the aspirant teacher in teaching (production oriented / arranged as fields of instruction a kind of learning arena), Assessment and evaluation, etc.

In the teacher training the aspirant teacher is not under pressure of being graded. Though is not without assessment the focus is formative feedback for individual, personal, and professional growth for developing the teacher profession. This element of strengthening their self-concept and self-care

⁹⁷ CF p 31 in: Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany. (2003). *Attracting, Developing and Retaining Effective Teachers. OECD Activity: Country Background Report for the Federal Republic of Germany.*

⁹⁸ Kandzora, G. (2008). *Ausbildungscurriculum des Hauptseminars*. Retrieved from <http://li.hamburg.de/contentblob/2919422/data/pdf-ausbildungscurriculum-hauptseminar.pdf>

⁹⁹ Inscription on pillar in Apollo's temple entrance hall in Delphi: know thyself

ability¹⁰⁰ is crucial as it is seen to prevent self-care deficit¹⁰¹, that can result in burn out, the major cause for teachers leaving the profession. Learning objectives are e.g. empathic understanding; fostering the ability to express emotions, ameliorating communication and interpersonal skills, promoting self-efficacy and self-esteem, etc.

These measurements are encompassed in the aspirant teacher's portfolio work. This instrument helps collect worked-out material, hints, references etc. It provides a matrix for the trainee teacher to reflect and evaluate daily work. Aside from that, the aspirant teacher has to participate in a module on media and information technology in teaching. As mentioned above the aspirant teacher's social background often does not concur with that of their students at the vocational education institutions. Strata at the vocational education institution are themselves not homogeneous. Individuals from the vocational preparatory class frequently barely possess the minimum requirements to achieve learning objectives, and graduates from secondary schools. This is amplified as in Hamburg 44% of TVET students have are from immigrant families. This challenge to teaching will be mitigated by competencies acquired in a module dealing with cultural and social heterogeneity. Last but not least, the optional modules are to be attended. These can be bilingual teaching, etc.

This education through the teachers' training college (Studienseminar) is complemented by tasks in the vocational education institutions. Here the aspirant teacher has to sit in on teaching units run by experienced colleges as individuals or in groups, advise students, take part in exams, work in vocational education institutions' projects, teach under supervision and guidance, teach independently, etc.

4.4.3.4 Linking competencies of phase 1 to phase 2

In Table 14 the reader will find three examples of the connection and correlation between phase 1 and phase 2 by interpreting and transferring the decision of the KMK (Decision of the Standing Conference of 16.12.2004) »Standards for Teacher education« with four realms of competencies:

- Teaching
- Education
- Assessment
- Innovating

Organization of learning

As said above the aspirant teacher will be in a mode of dual education. It is partly organized in vocational education institutions as a kind of on-the-job training (apprenticeship), and partly in special non-university teacher training institutions (Studienseminare), operating under the control of the federal ministries of education.

¹⁰⁰ Cf.: "The country background report included evidence from medical and psychological studies indicating that up to one third of teachers suffers from various physical, psychosomatic and psychological problems often described as the "burn-out syndrome". Other indications of concern are that many teachers leave the profession before reaching the official retirement age (in 2001 only 6% worked to the ordinary retirement age of 65), and that teacher absenteeism seems to be relatively high (...)"

¹⁰¹ Dorothea Orem Self care– practice of activities that individual initiates and perform on their own behalf in maintaining life ,health and well being cf.: Dorothea Orem's Self-Care Theory. (2012). Retrieved from http://currentnursing.com/nursing_theory/self_care_deficit_theory.html

The major modus operandi is work life experience as the starting point for reflection in the main and subject-related seminars. The embedding of experience in theory and conversely the application of theory in daily work and the development of suitable solutions is the main objective.

Learning and teaching methods

To get the aspirant teacher to a state of reflection, different learning activities are used. Aside from the academic assignments, they have to work on portfolio work. They will have micro teaching sessions, be counselled and receive formative and occasionally summative feedback, and do structured observation of senior teachers' lectures. The learning is case or project oriented and uses the problem solving approach contextualized in the specific situation, including a biographic, reflexive perspective. The seminars at the Studienseminar (teacher training college) are discursive and communication-oriented and work on theory applied to daily work problems. Aside from this, at specific points, the teachers responsible at the Studienseminar will provide additional new theoretical insights.

Table 14: **Correlation of selected competencies acquired in phase 1 applied in phase 2. Interpretation and Transformation of the decision of the KMK.**¹⁰²

Phase 1	Phase 2
Competence area 1: Teaching	
Competence 1 Teacher plans lessons professionally and properly and conduct them correctly by means of subject and respective subject oriented didactics.	
Student is familiar with and able to explain educational theories, deduct standards and able to put them under scrutiny.	Aspirant teacher connects occupational theory, subject related didactics, and is able to plan and conduct teaching.
Student is able to discuss general and subject oriented didactics and able identify all elements and decide what is to be considered when planning of lectures.	Aspirant teacher selects appropriate content carefully using sound reasoning, methods and articulation to facilitate achievement of learning outcomes.
Student is able to analyse concepts of media pedagogy and psychology.	Aspirant teacher meaningfully integrates state of the art information technology into their teaching and is able to make an assessment of the outcome.
Competence 2 Teacher facilitates students' learning through designing of learning situations. Creates a conducive learning environment and enables students to correlate and interlink contents.	
Student is able to appraise and evaluate learning theories.	Aspirant teacher chooses a scientifically sound approach to facilitate learning for the learning group and applies it accordingly.
Student is able to judge theoretical models explaining motivation applicable in learning contexts.	Aspirant teacher enables their students to be willing to learn and perform.
Competence area 4: Innovating Teacher develops knowledge, skills, and abilities continuously.	
Competence 9 Teacher becomes aware of the special requirements of the teaching profession. Understand the work of a public servant with a specific statutory duty, commitment, and accountability.	

¹⁰² Standards für die Lehrerbildung: Bildungswissenschaften. Beschluss der Kultusministerkonferenz vom 16.12.2004 1, Sekretariat der Ständigen Konferenz Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland 16-12-2004.

Phase 1	Phase 2
Student is able to determine, defend, and apply the legal frame applicable to their work.	Aspirant teacher utilizes the labour act relating legal regulations to work effectively and efficiently balancing work and life.
Student is able to reflect personal vocational and his/her own values and attitudes.	
Student is able to utilize key findings of psychological related stress research.	Aspirant teacher practices peer counselling as relief to support teaching planning and ease workload.

4.4.4 Participants of PTP

Prerequisites

As mentioned above the condition sine qua non to obtain access to PTP is the successful completion of the university phase concluded in passing the first Staatsexamen. Additionally to these conditions valid for any teacher trainee applicants for a vocational education institution, they have to prove practical work experience in the related field (industries, companies, etc.) of at least 12 months. Other graduates from shortfall occupations may enter the PTP upon graduating with a Master degree while taking courses in pedagogical science.

In future the internship (self-)selection of students by requiring an »Eignungspraktikum« (placement of the student serving as a kind of reality check to get a clear idea whether this profession is what the student should really strive for) of 20 days, best done before enrolment, concluded by a mandatory career counselling at the end. This "Eignungspraktikum" is mandatory to obtain access to the second phase e.g. in NW.

Restricting factors

Throughout the history of Germany after 1945, the field of education has been characterized by cyclical alternations, between a shortage and a surplus of applicants. Until now, most likely due to the long education period, it was not possible to intervene against these this cyclic alternation. At the moment, many staff members are retired, having been recruited during the big education expansion of the 1970s. Thus especially MINT subject aspirant teachers find themselves in a comfortable employee market situation.

As mentioned above anybody passing the 1.Staatsexamen is given access to this second phase. However, as open positions are limited university graduates will find themselves on waiting lists.

These waiting lists are regulated, in NW for instance by the following criteria:

1. If one of the applicant's two subjects is a shortage occupation (10%)
2. According to grades (60%)
3. Rank on waiting list (25%)
4. Hardship cases (5%)

If applicants fall in the same rank, the criteria will be combined. Alternatively lots are drawn.

4.4.5 Graduation of PTP

4.4.5.1 Graduation prerequisites and requirements

The procedure described here was for Hamburg in 2012 ¹⁰³.

At the end of the second phase placement at the vocational education institution the aspirant teacher is given a “Dienstzeugnis” (official letter of recommendation¹⁰⁴). This is the legal basis recognised by other federal states e.g. an 18 month second phase is equivalent to a 24 month PTP.

The following steps are to be followed before obtaining access to the second Staatsexamen [German state exam (degree level)]:

- A report of the vocational education institution is sent to the Seminarvorstand (seminar leader).
- Report of the subject related seminar is sent to the Seminarvorstand (seminar leader)
- Based on these reports the seminar leader will discuss the professional development with the aspirant teacher and write a third summarizing report with a proposal for the grade to the examination board.
- The aspirant teacher hands in a report on his PTP. This report is to describe precisely the tasks and duties taken over: for instance which classes and subjects were taught and which extra tasks were carried out e.g. projects and tasks related to the vocational education institution, etc.

4.4.5.2 Assessment procedure

In this phase of the last three months of PTP, the aspirant teacher has no teaching obligations at the vocational education institution. Teacher aspirants have to perform two demonstration lessons, one in each of the subjects, supplemented with their written assignment and concluded by an oral exam.

Demonstration lessons

The demonstration lessons are two 45 minutes teaching units. They will feature two subjects in front of well-known learning groups at two different stages of vocational education. The subjects will be decided on together with the seminar leader who is accountable. As a first step, the aspirant teacher hands in a written lecture plan. After conducting the lecture, the examinee has the chance to explain and give his/her point of view. The board of examiners finally decide the grade. The grade is immediately disclosed to the examinee and explained.

Written assignment

In Hamburg, the written assignment is a scientific review of specific selected topics from the teaching learning context oriented at daily work. The formal requirements are to be strictly maintained. The influence of these criteria on grading makes up to 10%. The topic is selected in agreement with the seminar leader at least six month before the end of the PTP. This is assessed by two independent

¹⁰³ Landesinstitut für Lehrerbildung und Schulentwicklung. (2012). Wegweiser für Referendarinnen und Referendare 2012. Retrieved from <http://li.hamburg.de/contentblob/2819234/data/pdf-aktueller-wegweiser-fuer-referendarinnen-und-referendare.pdf>

¹⁰⁴ Team, L. D. dict.leo.org - Ergebnisse für "Dienstzeugnis". Retrieved from <http://dict.leo.org/ende?lp=ende&lang=de&searchLoc=0&cmpType=relaxed§Hdr=on&spellToler=&search=Dienstzeugnis>

subject-competent seminar leaders who suggest a grade based on reasoning and submit these to the examination board before the oral exam takes place.

Oral exam

Before the oral exam grades for the written assignment and the assessment of the PTP are decided. The oral exam assesses the examinees' knowledge and competencies in the domains of general and subject-related didactics and subject-matter and legal and organizational issues of education. Duration is 60 minutes. After the exam, the examination board decides the grade.

Final grading

After completion and grading of all parts of the exam, the examination board decides on and calculates the final result based on the weighting

$$\Sigma = (\text{grade}_{\text{PTP}} * 3 + \text{grade}_{\text{demonstration lesson 1}} * 1.5 + \text{grade}_{\text{demonstration lesson 2}} * 1.5 + \text{grade}_{\text{written assignment}} * 2 + \text{grade}_{\text{oral exam}} * 2) / 10.$$

This will be explained to the examinee by the chairperson of the examination board.

4.4.5.3 Certification authority

All exams, reports, grading, issuing of documents are carried out by the “*Lehrerprüfungsamt*” (office for exam of teachers at the Teacher Training College (Studienseminar)).

4.4.5.4 Assessors involved in the assessment procedures

The examination board is set up by and at the teacher training college (Studienseminar). It is comprised of:

- a public servant of educational administration with the right to teach, or a seminar leader
- the main seminar leader
- subject oriented expert seminar leader
- for the demonstration lesson this group is completed by the headmaster of the vocational education institution.¹⁰⁵

4.4.6 Outcome of PTP

Outcomes of PTP are as follows:

4.4.6.1 Improvement of competences

If one interviews the aspirant teacher and teachers regarding their PTP, they will talk of the stressful time and obvious problems in daily work starting such as how to address the students, organize group work, so all students participate, how to keep the timeframe, etc. Furthermore, they will talk of the support they got from their mentors and the responsibility of the study seminar leader. Most will still say that it was a time they learnt a lot if not to say the most about teaching.

¹⁰⁵ Cf.: Verordnung über den Vorbereitungsdienst und die Zweite Staatsprüfung für Lehrämter an Hamburger Schulen (VVZS) 14. September 2010.

Besides this individual weighting it is apparent that phase 2 fosters and guides the way to becoming a teacher. One could say the second phase axiom is that theory has to throw light on, if not to enlighten, the practice.¹⁰⁶ This second phase under guidance ameliorates the application of knowledge and enhances skills and abilities by referring to and analysing theory through scientific reflection of daily work in the study seminar. This is supplemented by the guidance of the experienced mentors at the vocational training institution, who counsel the trainees on how to embed the scientific approach in the real situation i.e. counselling in real case studies. Furthermore PTP is the crucial period for develop competencies, which will allow the teacher to progress in the career. This phase finally though subsequent to phase one determines the course of the further development professionalism.

Anyhow the increasingly challenging definition of a competent teacher, is to be able to facilitate learning, motivate the educationally disadvantaged, support students from need based immigrant families individually and, ensure TVET graduates are highly qualified and fit for the global market by meeting the demand of industries. As well as making it clear that university education cannot accomplish this. Even the PTP will not guarantee that these competencies can be acquired. According to Terhart, it takes eight to ten years to make it from novice to expert. Therefore, the prospective professional teacher has to be enabled and guided in achieve this difficult aim. The fundament is a self-reflective- science oriented habitus developed during the first phase of education but internalized and brought into life during the guided second phase. This guided socialization and introduction to the teachers' profession, the thought collective, the paradigm, its professional and individual self-understanding is the major aspect of the second phase agenda.

4.4.6.2 Improvement of career and remuneration

PTP in Germany is not a step for career improvement or a step for remuneration. It is just the *conditio sine qua non*. Without it an aspirant teacher is not be allowed to work as a full-fledged teacher at a vocational education institution.

The system for CPDP is still under construction in Germany. The incentives to participate in these measurements remain minor, as the salary scale of public servants has not yet been successfully switched to a performance-based system.

4.4.7 Financing of PTP

4.4.7.1 General

Public education expenditure in Germany is taken on by the federal government, the federal states, and municipalities. Approximately 66 % is covered by the federal states, 19 % by municipalities and 15 % by federal government. Staff costs add up to 82%, 8 % goes on investment and 10% on current operating costs.

Aside from that the reform of higher education and the opportunity of recruitment of faculty staff introduced third party funds and began to contribute a small but welcome share to a faculty or school.

¹⁰⁶ Kallweit, G.: Wege zu einer individualisierten Lehrerausbildung in der II. Phase. In: Kursbuch Referendariat. Hrsg.: P. Daschner/U. Drews. 4. Aufl., Beltz, Weinheim u. a. 2002a, S. 19-25.

4.4.7.2 Financing sources

Nearly all expenditures are financed through taxes. A vigorous discussion arose when tuition fees for higher education were introduced in some federal states, as it was considered to be an attack against educational equality and quite recently nearly all were swept away.

4.4.7.3 Affordability of the programme

The teacher trainees are employed as non-life-time civil servants (*Beamte auf Widerruf*). Their monthly “aspirant salary” (*Anwärterbezüge*) is approximately 1100€/month.

4.4.7.4 Sufficiency of financing regarding quality assurance

This heading will generate different answers due to the respondents’ position. Whereas decision-makers generally declare it to be well balanced, a few - in particular especially teachers aspirants and employees of teacher training seminars, may well have a completely different point of view.

The staffing level and education of teacher trainers at university must be improved to facilitate the students’ acquisition of ambitious learning outcomes¹⁰⁷. The challenge is that any reform for improving quality has to be strictly without any costs involved (self-financing).

According to Bergheim, the increasing practical training puts a lot of pressure on the universities.¹⁰⁸ In PTP, expectations in terms of quality are also constantly increasing. Unfortunately, no additional staff will be seconded to the institutions. As seen in the staff/task table unfortunately the very important *Betreuungslehrer* (vocational education institution tutor) receives no reimbursement for their work.

4.4.8 Experiences of PTP implementation

Although this set-up faces heavy criticism to, as mentioned above in Germany it is generally understood that PTP cannot be dispensed with. Should participants not achieve the set outcomes, it goes without saying that the *modus operandi* has to be changed. To make it more effective the following measurements are to be taken. Firstly the early (self-)selection of students by requiring an »Eignungspraktikum« (placement of the student to provide a reality check to ensure this profession is really desirable). This is best carried out before enrolment finalised by mandatory career counselling upon its conclusion (see before »Eignungspraktikum«). The second part is the early integration of the future work place in phase 1. Early exposure to the working place at the vocational education institution was integrated into phase 1 and became indispensable. See illustration: “The course of TVET Teacher education in Hamburg”. The objective is to amalgamate these internships as an integral mandatory learning unit with the university studying. Thanks to the introduction of ECTS after Bologna, these internships are not only valuable in terms of practice-oriented learning, but also quite beneficial in terms of the study and study results as ECTS are to be granted. This exposure is done

¹⁰⁷ P. 187 in: Óhidy, A., Terhart, E., and Zsolnai, J., eds., *Anmerkungen zu Praxisphasen in der Ersten Phase der Nordrheinwestfälischen Lehrerbildung // Lehrerbild und Lehrerbildung: Praxis und Perspektiven der Lehrerbildung in Deutschland und Ungarn*, 1st ed. Wiesbaden: VS Verlag für Sozialwissenschaften; VS, Verl. für Sozialwiss, 2007. <http://www.worldcat.org/oclc/288281335>.

¹⁰⁸ E.g. Bergheim calculates solely for his university in Bielefeld Bergheim an additional demand of 50 positions! Cf.: P. 195 in: Bergheim, Andreas, *Anmerkungen zu Praxisphasen in der Ersten Phase der Nordrheinwestfälischen Lehrerbildung*. In: Óhidy, A., Terhart, E., and Zsolnai, J., eds., *Lehrerbild und Lehrerbildung: Praxis und Perspektiven der Lehrerbildung in Deutschland und Ungarn*, 1st ed. Wiesbaden: VS Verlag für Sozialwissenschaften; VS, Verl. für Sozialwiss, 2007. <http://www.worldcat.org/oclc/288281335>.

in two locations and in two steps. During the Bachelor study course the student has to participate in an Orientierungspraktikum (orienting internship). Aside from this, the study course includes two internships, one in an educational, the other in a non-educational setting. In the second, taking place at the latest during the third semester of the Master study course, an internship has to be completed with a duration of a full semester (30 ECTS).

Figure 21 with kind permission from Prof Tade Tramm demonstrates the higher level of penetration and interlinking of phase 1 with phase 2 elements.

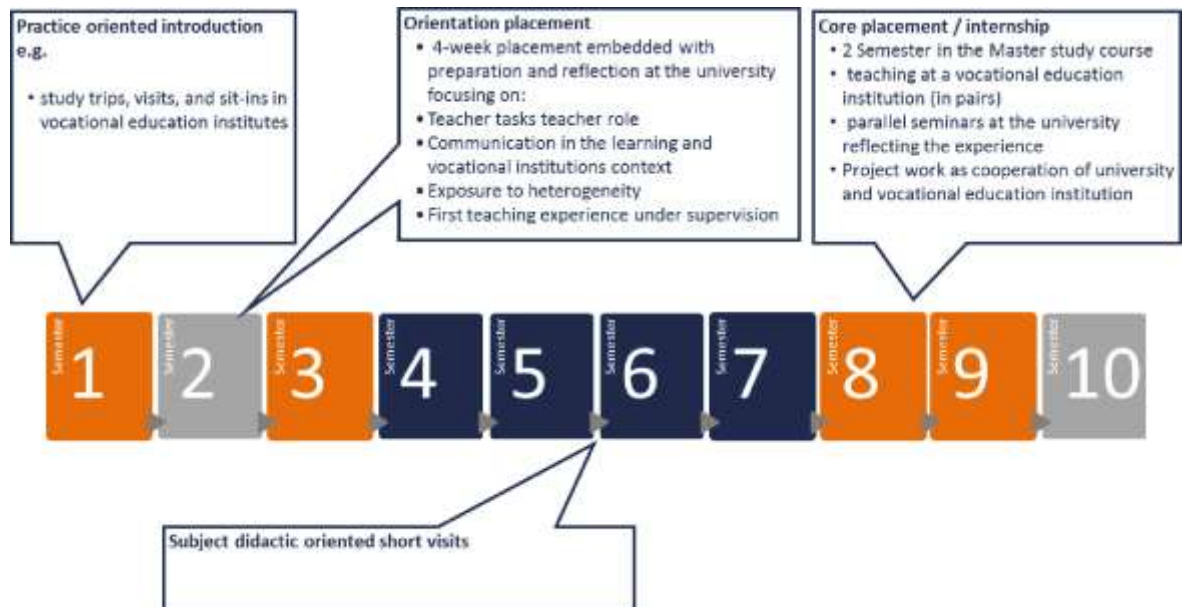


Figure 21: Phases of practice in (TVET) teacher studies in Hamburg

Anyhow this would not be the complete picture, without mentioning, that this interlinking and early integration under university supervision only functions and achieves the set learning outcomes when enough resources are available. At the moment it is extremely challenging for the universities to guarantee enough guidance for the students while in these placements, as this learning approach takes up more of the work force. Thus, the state would have to provide more human resources.

4.5 Comparison

Based on the partner countries' (Indonesia, Vietnam, China and Germany) field research results and on seminar discussion, this chapter discusses a comparison of some important aspects of TVET particularly related to the implementation of PTP. These aspects include the philosophy, policy, objectives, structure of PTP in teacher education, curriculum, the parties involved, its evaluation and the problems faced within the implementation of PTP. The commonalties and differences of these aspects will be explained briefly, to provide an overview on the state and tendency of PTP implementation in the partner countries.

4.5.1 TVET Philosophy

According to the reports collected from all the partner countries and the results of the workshop discussions, all philosophical aspects underlying the implementation of vocational education and training (TVET) generally reveal a similar orientation of TVET, which is to prepare individuals to

face their future in the world of work. This means TVET work concentrates on developing its participants working skills. In spite of this similarity, there are obviously a few differences between the countries.

The TVET philosophies of Indonesia and Vietnam emphasize the development of individuals, who can contribute to their social environment through activities performed in the world of work. Furthermore, in these countries, it has been declared explicitly that TVET provides the opportunity to participants' access to further education at a higher level. Nevertheless, compared to Indonesia, Vietnamese TVET has more specific correlation to its industry sector. Here it was declared that TVET outcome means the possession of practical capabilities compatible with their qualifications.

Unlike Indonesia and Vietnam, Chinese TVET philosophy appears straightforward and pragmatic. The main purpose of TVET is to meet the needs of the industry and the labour market in terms of skilled human resources.

Philosophical backgrounds reflect the different economic circumstances of the various countries, particularly in terms of the labour market. Countries with high labour market growth rates, such as China, emphasise the direct relation between TVET outcome and the labour market and how crucial it is as a supplier of skilled workers. Indonesia and Vietnam, however, where both the economy and labour market are greatly weaker than in China, share a TVET philosophy more abstract and idealistic sounding.

Like the Chinese, German TVET aims at providing skilled workers that meet the labour market needs. Nevertheless, a specific character underlies the TVET system in Germany. The developing of competent participants is carried out in a holistic way, aiming at developing both occupational proficiency and civil responsibility simultaneously. This is what sets it quite distinctly apart from the other countries.

4.5.2 Objective of PTP (incl. concept and model)

The general objective of PTP implementation in each country is basically the same; to develop occupational competence of prospective vocational teachers and in so doing improve their professionalism. Hence, the PTP learning process is supposed to enhance the practical skills and pedagogical capabilities of prospective teachers.

As PTP in Indonesia follows the same goals, PTP implementation has been conceived to accentuate practical aspects in the training process. PTP is divided into two main parts taking place at university and vocational schools, respectively, with an overall duration of 1 year, and an equal amount of time spent at each of the two learning venues. The deepening of pedagogic theory at universities is to be implemented using the workshop method, where active participation is required by the participants in the learning process. Meanwhile, in the vocational schools, participants are expected to develop practical skills by being directly involved in learning and teaching processes.

In Vietnam PTP is only intended for graduates of non-educational universities or colleges, intending to become teachers at vocational schools. Graduates of educational universities or colleges can obtain an educational certificate and immediately be employed as a teacher, whereas colleagues with a non-educational study background must invest 6 months in PTP participation. PTP aims here at standardizing the participants' pedagogic competence before entering service as a teacher. To this end the Vietnamese government has developed a national competency standard for vocational teachers. In reality, the training is quite theory-oriented, with most studying taking place in training institutions such as educational universities and colleges.

China does not actually run a bona fide post-study pre-service practical training programme for vocational teachers. The development of practical and pedagogic competences of prospective teachers is integrated directly into the first years of employment as a teacher in vocational schools. The training usually lasts two years and includes a formal probation period of 1 year. Hence, all novice teachers in China take part in the programme and learn by applying the pedagogical knowledge obtained from their studies directly within working activities. Thus, the learning concept of the programme has to be considered fully practice oriented.

Unlike the three above countries, Germany is the only country, with a relatively well-established PTP system. PTP is a fixed and obligatory part of teacher education featuring 18 to 24 months duration for each teacher candidate. Pre-service teacher training, dubbed the “Referendariat” or “second phase of teacher education”, sets out to ensure graduates can make use of the pedagogic theory acquired during the university period while in service at vocational schools, and effectively introduce them into the vocational teachers’ community of practice.

4.5.3 Policy and regulations (incl. financing aspect)

In terms of policies and regulations, no one partner country, has specific laws at a national level specifically regulating the implementation of PTP. In all countries PTP implementation regulations are scattered across several education legislation areas. In Indonesia and Vietnam regulations concerning PTP are fairly implicit in several educational laws and decrees., As PTP organization in Indonesia is under the authority of universities that offer teacher education; all aspects of the implementation and concept of PTP is designed by the universities involved.

As educational matters are under the sovereignty of the federal state governments, in Germany there is no regulation in place at a national level. Each federal state government has its own regulations that differ from one state to the other.

In China no policies and/or regulations, at a national, federal state, provincial or district level have been instituted. Neither the existing teachers’ law nor the regulation on teachers’ qualification issued by the ministry of education define concrete competence or education/training requirements for the qualification of teachers. Provincial governments establish the concrete rules for implementing the national laws and regulations mentioned above.

In terms of financing PTP implementation, Germany is the only partner country, where the government is fully responsible for the financing of the PTP process. In other countries such as Vietnam and Indonesia, cost for participation in PTP is at least in part the responsibility of the participants. Nevertheless, as the implementation of PTP in Indonesia is still in the planning stages, the financing scheme has not yet been finally determined.

4.5.4 Curriculum structure

The curriculum of PTP, in terms of its theory-practice proportion, is structured differently from one country to the other. In China the PTP curriculum, as explained above, is organized one hundred percent in practical mode, as training is embedded in the teacher service, where it constitutes an occupational probation period. Novice teachers develop their professional capacity by observing, imitating, learning under guidance of their mentors at the schools where they work. Apparently, there is no clearly defined curriculum structure.

In Indonesia PTP will be divided into half theory and half practice. Universities are to prepare teachers with a bundle of pedagogical theories before they go on to the practical part in vocational schools. A number of subjects related to didactical knowledge and learning management will be studied in this venue. Participants with an educational study background focus on subject specific-pedagogy, whereas their peers of a non-educational background are to be exposed to a wider range of subjects including didactics, learning psychology, etc.

The whole programme, both the practical and the theoretical parts can be structured either in a block scheme, where time is divided 50:50 between school and university, or in a partial scheme mode, where the time spent at the two learning venues alternates, for example in a 3 monthly rhythm.

By contrast with China, the PTP curriculum in Vietnam is dominated by pedagogical theory teaching. The 6 months of learning take place in assigned PTP institution, such as universities or educational colleges. As the programme is attended by graduates with non-educational background, they largely study basic pedagogical knowledge over the period. Such a curriculum layout means it is most likely the development of participants' practical skills is minimal.

Germany seems to have a well-established PTP curriculum compared to the other partner countries. Programme duration varies slightly from one state to the other and ranges from 18 to 24 months. Such long training duration provides prospective teachers with a wide range of subjects and the potential to master pedagogical competences. Aside from the significant proportion of teaching practice in vocational schools, they also get additional practice-oriented theoretical training in so-called "Studienseminare" from supervisory experts assigned to the training. This training model gives the participants the opportunity to put the pedagogical theories they learnt into practice.

4.5.5 Parties involved in PTP

As governments are usually the main actors and stakeholders of the education system, the development of TVET teachers is one of their major concerns. Consequently, the design and implementation of education programmes, including teacher training such as PTP, is usually under governmental control via different bodies and institutions. These bodies can be found at different levels of the country's administration structure.

In Vietnam government-controlled universities and colleges, jointly labelled teacher education institutions, are the only institutions involved in PTP. In the other three partner countries, Germany, China and Indonesia, vocational schools are also involved in the implementation of the training programme. The schools and the teacher education institutions (in the German system the so-called Studienseminare) cooperate and collaborate in developing prospective teachers' theoretical and practical skills. In Vietnam the lack of school engagement could well indeed, reflect the PTP deficit in particular regard to the practical aspect.

Regarding the training of novice teachers, China is the only country here, which explicitly engages the industry sector into the development of teachers' skills. Selected experts from companies are sent to vocational schools at the government's expense to impart industrial know-how. This is crucial in enabling teachers to cope with the industry sectors' rapid technological development. In Germany the industry sector is not directly or formally involved, but there is an indirect path through which prospective teachers obtain contact with the corporate sector. Due to the "dual" organization of TVET vocational schools and teachers too, often cooperate closely with companies. Thus future teachers are introduced to this during PTP.

4.5.6 Assessment and evaluation

Assessment and evaluation are most vital elements of PTP and both elements often influence the actual implementation if not the “hidden” curriculum of such a programme. The concept of the Indonesian PTP contains several tools and procedures designed to assess the learning progress of PTP participants. The activeness of participants during the training will be measured from their presence in workshops and by peer-assessment. Micro and peer teaching are applied to assess and evaluate practical teaching skills. A variety of assessment criteria have already been defined regarding class organization skills. As noted, the criteria comprise planning skills of up to evaluating learning processes. To graduate successfully, participants have to pass written and oral, theoretical and practical assessments. As described in the country section, each component of the assessment is assigned a certain proportion of the final score.

With the training organized mostly in practical mode, in the Chinese concept, assessment and evaluation are also more practice-oriented. Participants take public lectures and perform direct teaching in class which is captured on video tape, and these practical forms are to be assessed and evaluated by the instructor and the candidates themselves. Other practical activities, such as class, counselling and learning evaluation are carried out supervised by experienced teachers and evaluated by them.

Regarding Vietnam, the evaluation of PTP is mostly in theoretical mode, as the whole training process takes place at a university or college, where training focuses on basic pedagogic theories. No external assessment mechanism is applied in this training concept. Assessment takes place at the end of the training.

In Germany, the assessment procedure is taken at the end of the training phase, in the last 3 training months. Some components encompassing theoretical and practical aspects are applied in this assessment. For the practical part, participants have to demonstrate their teaching skills in front of expert assessors. For theoretical topics participants sit an oral exam, to prove their knowledge capacity. They also write a scientific paper related to the pedagogical theories. All scores of these assessment components determine their graduation marks.

4.5.7 Problems and difficulties

According to the findings of field research carried out by the partners in each partner country, some problems and difficulties in the implementation of PTP were identified.

In China PTP faces a time management problem. In terms of PTP-1 students are faced with an overlapping timing situation. Due to the difference of the school and university calendar, the internship season frequently overlaps with the time when students are involved in master programme entry examination preparation and job searching activities. It is difficult for students to focus on internship with so many other things to do. Another problem concerning the organization of learning during the internship emerged. Schools tend to use students as labour force, rather than trainees. In such instances the guidance and learning opportunities are lacking and students do not gain the expected benefit from their internship.

In terms of PTP-2 the administrative structure was problematic. Politicians tend to be impulsive in their decision making, the policies chosen have often little pertinence and relevance to the teacher improvement programme. Furthermore, an occasional focus on moral aspects hampers the development of professional abilities and experiences.

Whereas in Vietnam the lack of qualified trainers and a fundamental infrastructure form major constraints for PTP implementation, in Germany the problems are the duration of teacher education, which is extremely long in its entirety. Its training system does not provide systematic occupational experience in the vocational discipline for trainee teachers without a vocational background. This last problem, however, only affects a relatively minor number of teacher candidates.

5 Results

This chapter is based on the comparative analyses of the country reports. It is to complement the analytical part of the study. Several aspects constituting the weakness of PTP implementation in the partner countries are highlighted in the chapter for the purpose of providing a general insight into what should be improved or re-oriented.

5.1 Basic (mis)-conception of TVET

The vocational education systems in Indonesia and Vietnam reveal a wide gap between the basic aim to provide skill development and the demand of the world of work where skills have to be operational and productive. The fact, that vocational education explicitly aims to ensure access to further education in the academic realm, can be perceived both positively and negatively. In positive terms VET systems offer their participants the opportunity to choose between two career paths; to immediately enter the world of work and cash in on their skills, or continue into higher education. Negatively seen the systems obviously do not guarantee graduates' skills to be put to the test immediately and implemented in the economy. This latter appears the more valid one, given that academic performance decides whether the vocational path is entered or general education. University access is regulated via academic exams in which vocational skills play no effective role and learning in vocational education is often organised in an academic way that is hardly optimal in developing working skills and is discouraging to the academically less fortunate. Concentrating on more practically oriented subject matter and learning modes would be better suitable for optimal development of their skills.

Integrating preparation for access to higher education as a fundament of vocational education necessitates a broader range of learning content in the curriculum. Students have to be equipped with both, working skill and academic skills for them to compete with peers from general schools when they attempt entering higher education in a competitive process. Thus vocational education tends to overload its participants' learning capacity. In Indonesian vocational education for example, participants have a learning load of up to 5.800 hours over 3 years vocational school education. This more than what a student on polytechnic study programme faces over three years. Students tend to lose their learning focus in both domains, resulting in insufficient mastery of occupational competencies and less grasp of the academic curriculum. Many vocational graduates lose at both levels - in the labour market and the higher education sector. Only few vocational graduates continue to higher education, and in the labour market the majority of them have no privileges over their general school peers who are often prioritised in the selection and hiring process for specific jobs that command higher salaries, in spite of the fact that their competences meet the requirements of skilled jobs better.

5.2 Lack of practice and unclear structure – critical aspects of PTP concept

As the availability of qualified teachers is crucial to the development of vocational students' competences, which develop teachers' professionalism, the strategic steps to be taken to improve TVET outcome quality and its graduates' situation, involve the implementation of post-study, pre-service training programmes (PTP) for vocational teachers. Just how seriously this objective is taken, is reflected in the implementation model and PTP curriculum. The mode of these two aspects differs from one country to the other. A comparison between China and Vietnam reveals two inherently different approaches to PTP implementation.

Being a period of only six months, Vietnamese PTP fails to see the importance of the practical part of the programme. The programme aims mainly at imparting theoretical pedagogic knowledge to its participants, who clearly have no pedagogical background, as the programme's target group consists of graduates from non-educational universities or colleges. At the moment PTP for graduates from educational universities appears not to be on the cards.

In distinction to Vietnam, Chinese PTP is extremely practice-oriented and has a training duration of two years which appears quite sufficient for developing the participant's occupational skills. However, PTP in China is less formalized in as much as it has no clear curricular or content structure. For novice teachers there is some arbitrariness in terms of what they learn. In view the lacking quality of assessment procedures the ultimate quality of such a scheme is questionable.

By comparison of both models the intention is to stress the necessity to develop the practical skill teacher and emphasise the need for a clear and structured teacher training programme curriculum. In the absence of or with poor practice the expediency and effectiveness of a training programme is also extremely dubious. Practice is the best inquiry method of learning. Along with cognitive competences practical competences shape the professionalism of a vocational teacher as a whole.

Regarding China, the structuring of the programme is also vital for the training's effectiveness. The lack of a clear structure will influence the programme's effectiveness. The structure is useful in providing an overview on the extent and depth of the learning process. It helps determine the evaluation criteria of each stage of the programme.

5.3 Lack of industry involvement in PTP

The PTP concept in most countries is exclusively designed to develop the pedagogical competences of prospective teachers. The given concepts do not take the occupational skills or knowledge about work and business processes into consideration. As vocational teachers deal with the development of their students' working skills that are supposed to meet the standards and the needs (which can be different) of industry, it is imperative teachers already have insight into and an understanding of the workplace in companies and their related competence requirements. Teachers also have to have a command of the practical occupational skills they must impart to their students. This means that teachers should have up-to-date knowledge on the current technology and its application, the work process and work organisation of companies, and their own experiences in the field, that means they can convert "text book knowledge" into occupational expertise. It is absolutely vital therefore to have companies on board as partners in PTP implementation.

Cooperation with the economic sector can be initiated and developed in various forms, though, for instance, exchange of expertise, industrial apprenticeships, joint curriculum, etc. China is the only country to involve industry thus far. As noted earlier, selected companies are involved in the programme, sending their experts to give lectures or seminars on specific topics related to their industrial expertise. Nonetheless, as in other countries PTP in China does not include companies as a venue of the training process. It is mainly vocational schools and universities or colleges that are the institutions involved in the training process.

5.4 Lack of regulation

The organization of teacher education, including PTP, is complex, as several institutions are to be involved. This requires a kind of synergy which is needed to cover all areas of expertise and assure quality. Government, teacher education institutions, vocational schools and companies should work

together and contribute their specific expertise and provide their sites as learning venues to attain the common goal. It is hard, if not impossible, to create such a type of synergy, when no rules regulating the roles, functions, responsibilities, rights and obligations of the respective parties are as yet in place.

As the report analysis has shown, the absence of such comprehensive regulations form one of the constraints inhibiting effective realization of PTP's core goal of enhancing teachers' professionalism. Aside from Germany, such regulations are absent in all the partner countries. Should this absence persist, many aspects of PTP implementation, such as training duration, content, models and curriculum can differ from one training institution to the other. The lack of regulations points to the absence of a common minimum quality standard, which leads not only to a restricted mobility of trained teaching staff but also to a widening of the quality spectrum of vocational schools.

5.5 Training assessment and poor programme evaluation

As described in the comparative analysis, a variety of schemes and methods exist to assess the learning output of the participants of the pre-service training programme. The methods comprise assessment in the initial phase up to the end of the programme. However, to what extent are the applied methods effective in improving the output quality? Further research is required to answer this question.

One thing all Asian countries have in common is the absence of procedures for external assessment of the training output. All assessments are carried out internally by the training institutions themselves. Theoretically, under these conditions, emotional proximity between participants and trainers, who are simultaneously assessors, could very easily compromise the assessment's objectivity and the temptation for the training institution to maximizing its quality on paper at least, by giving graduates maximum scores and cutting the number of graduate failures cannot be ruled out.

Another aspect common to PTP in Asian countries is the apparent absence of schemes for the evaluation of the programme's quality. The design, duration, content, infrastructure, learning mode of the programme, the quality and performance of the teaching personnel in charge have all not been evaluated. This lack of programme evaluation is usually not considered critical by local actors in developing countries, as the policies on the development of educational programmes in these countries are usually stipulated by top-down management. Government regulations are implemented in the respective institutions primarily for the sole sake of implementing the regulations, rather than achieving the goals that brought the regulation into existence in the first place. In addition, periodical evaluation incurs extra costs, often not considered to be an efficient investment in progress. These factors make it difficult to carry out evaluation that can support quality development processes. No evaluation means no transparency in terms of quality, effectiveness and efficiency, and it also results in no information on how things can be improved.

6 Recommendations

6.1 Conclusions

Based on the comparison analyses of the reports and the result described above some conclusions can be drawn as follows:

- The existence of PTP programmes that set out to improve the professionalism of vocational teachers is crucial in preparing prospective teachers before they begin their service teaching at vocational schools
- The development of practical skills is the main object of PTP, by which prospective teachers can put their pedagogical theory into practice and be introduced into their world of work.
- PTP is implemented in most of the partner countries in different modes regarding duration, addressees, model, curriculum structure and institutions. In terms of theory-practice ratio, Vietnamese PTP shows a practice deficiency, whereas conversely in China the practical aspect is far more emphasized if not to say even dominant. Nonetheless, Chinese training is unclearly structured.
- In most countries, aside from China, the industry sector is excluded from PTP implementation, even though this sector is one of the most important stake holders in TVET outcome.
- None of the Asian partner countries has specific laws at a national level that stipulate teacher training legislation. Hence the assurance of a quality standard of teacher training programmes is steeped in doubt.
- There is a real need for implemented PTP to be evaluated regularly. As stated in all reports, none of the countries had any form of structure of regular programme evaluation, to measure the usefulness and appropriateness of PTP.
- Due to differences at several levels, the implementation of PTP in each partner country has a distinct character, but each also bears equally distinct problems that must be solved. To this date the German PTP system demonstrates the most adequate and the appropriate path for developing and improving the professionalism of vocational teachers.

6.2 Desiderata

The post study pre-service training programme for vocational teachers (PTP) is invaluable in preparing teachers for their professional service in schools. Professional teachers are key actors in the front line, who shape the ability and achievement of a vocational education system and its outcome can have a significant effect on the economic sector. For this reason the implementation of this programme calls for great concern from its stakeholders. In the context of this study the following ideals might be useful for the improvement of PTP:

- The details of PTP organization be stipulated by regulations at national governmentally legislative level, to ensure a national quality standard outcome can be guaranteed.
- Governmental investment in vocational education to provide the training fees and a real training infrastructure.
- PTP design is based on the real needs and demands of the teachers and industry as users of vocational education output.
- PTP is compulsory for every prospective teacher and that professional experts are involved in the training process.

- PTP is aimed at the improvement of a teachers' professional skill, not solely the awarding of a teacher certificate.

6.3 Recommendations

This empirical field research coupled with content analysis from various sources of written documents has resulted in a number of conclusions indicating the demand for a variety of steps to be taken to improve aspects of PTP implementation.

Empirical research as a basis for programme development

The first aspect is related to policy measures regarding teacher-training provision which in most of the developing countries is largely dominated by the government in developing the professional formation of teachers' programme. It is often the case, particularly in developing countries, that teacher professional development programmes are created and implemented "politically". This means that programmes or policies are often made without proper regard to the real needs in the field. As a result the applied strategies conclude in being inappropriate and/or insufficient in assisting in an improvement of teacher professionalism.

Based on the findings the study recommends conducting empirical studies on the training demands of novice teachers. Field research should verify the numerous facts regarding the actual state of teachers' professionalism in terms of its strengths and weaknesses, and then highlight the issues that are in urgent need of improvement. The evidence demonstrates the professionalization needs for the development of PTP can be better targeted, more effective and more efficient.

Emphasis on the complete job profile

The second point highlights the problem of teacher professionalism in terms of occupational skills. Teachers in vocational schools have distinct and broad professional profiles, among which is the task to prepare youth for entry into the world of work. This means they have to work on developing their students' working skills. Mastery of occupational skills in their respective teaching fields therefore cannot be separated from their professionalism. The skills here are those which suit industry needs regarding production and technological development. Nevertheless the focus on the development of occupational skills should not lead to the development of pedagogic skills being neglected. Occupational competence not coupled with pedagogical and didactical competence cannot provide appropriately for shaping processes of knowledge transfer. Both skills must be developed in tandem, both in theory and in practice.

To meet these kinds of demands PTP implementation would not only improve pedagogical skills, but also integrate aspects of the development of occupational skills into the curriculum.

Emphasis on cooperation between stakeholders

Such demands usually cannot be met by the institution organizing the PTP as a single player. A synergy is required through cooperation with the industry sector as user of the vocational education outcome. The industry should be included and actively engaged in developing some of the programme phases related to the capacity of the industry; an example here could be the development of a collaboration model that integrates the imparting and development of occupational skills into PTP.

The partnership with industry should be carried out intensively and simultaneously. This means, industry not only plays a role in providing working expertise during the learning processes in class,

but provides a close connection to their world of work too. Hence, vocational teachers have continual access and the opportunity to keep their technical know-how updated.

In many developing countries the development of active partnerships with the industry sector is likely to face a common obstacle. Most companies maintain the view that cooperation with educational institutions is a burden on the company thinking they are expected to provide an extra service for the process of know-how transfer to the trainees. To overcome this, companies can be encouraged to actively contribute to the educational process in PTP by stimulating attractive impulses representing good returns from partnership with the educational institute involved. To this end the institution implementing the PTP should approach the companies actively and attract them by proposing a particular scheme of cooperation beneficial to both parties. Exchange of expertise and joint research is precisely the grounds for such mutual benefit.

Furthermore, as governments are the main actors and regulators of the implementation of PTP, it is recommended the governments also actively act to stimulate cooperation between the parties. For instance, this could be achieved by the enactment of certain regulations to boost the development of partnership between enterprises and PTP institutions. Tax deduction and/or financial support for industrial experts involved in PTP (as implemented in China) could prove affective tools for stimulating cooperation with the industry sector.

Independent institution for the implementation of PTP

According to the results of the study presented in the previous section, it became clear that universities play a dominant role in the delivery of PTP. Universities and their personnel were the only institutions appointed by governments to handle the implementation of the PTP. To a large majority of prospective teachers this domination seems to be a repetition of their learning process. The universities ran both their basic studies in the educational field and their teacher training as preparation prior to service in vocational schools at the same institution. It means various aspects, such as organizational style, the training personnel in charge and the actual learning content, particular pedagogy will simply stay the same.

It would not be a problem having universities involved in the centralized implementation of PTP if they can ensure the implementation of certain mechanism of quality assurance in a sustainable way. However the reality in this area is somewhat different. Findings in Indonesia, for instance, have shown that such dominance cannot yield significant improvement in the quality of training output, as universities tend to apply the same learning model and content, already imparted to their student during the college. To remedy this, it is recommended PTP be undertaken by independent institutions outside the university environment.

Compared to a body attached to a university which has always to deal with the management of its host university an independent teacher training institution could be more flexible as independent management would provide them with a greater flexibility and scope for development and a variety of custom designed innovations. In terms of human resources it would be more open to experts from different institutional backgrounds, representatives of higher education, or from industry and vocational schools to join the institution and help run the programme. Furthermore these kinds of independent training institutions should be open for changes. The system should offer a flexible structure to accommodate new potentials and provide more professional trainers within the framework of a continuous quality assurance procedure.

Implement practical elements as early as the first phase of TVET teacher education

The following recommendation concerns the PTP curriculum. PTP should be integrated into the teacher education curriculum as early as possible. In the seminal stages of teacher education, i.e. bachelor level at university, PTP can be implemented in a complementary way, perhaps even in tandem. This is vital, given the purpose of PTP, which is to prepare the students working competence in the field of teaching. Thus, the implementation of PTP emphasizing on teaching practice will introduce students to the world of work far earlier. Hence, at the end of the course the students would automatically be better prepared to cope with their tasks in the work place. As the implementation of PTP curriculum is practical oriented, the development of the participants' teaching skills would be far better served.

Quality development culture and formative programme evaluation

Given the importance of PTP in preparing the work of the participants' competence, PTP should be designed to be dynamic and progressive; dynamic in the sense of the programme's openness to constructive changes and progressive for its continuing quality improvement ability by accommodating new developments. Programme monitoring and quality assurance procedures should become permanent agenda in the development of PTP. A mechanism is required for the purpose of comprehensive and continuing evaluation. The evaluation should not just be carried out for the purpose of some formal need, such as to meet an accreditation requirement. Instead, it should be designed to function in a regular and sustainable mode. Different models of external and internal evaluation are available for application to this end.

Holistic assessment procedures

The competence of PTP graduates should be proved by holistic assessment. The assessment should not only focus on the participant's pedagogical skills, but on the competence profile as a whole, where occupational expertise is also considered. Both fields should be assessed in a written and practical way, to measure the cognitive and motoric improvement of the learner.

Appropriate / sufficient resources

Last but not least, improving PTP infrastructure is highly recommended. All the ideal concepts and models applied in PTP can only be run if stable infrastructure is present. This recommendation is utterly dependent on the goodwill of the stakeholders of programme, especially the government as a dominant actor. The government should not view improvement of basic conditions such as infrastructure as a burden, on the contrary, it should be understood as an investment in better education for a much improved future.

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