# Secondary (9-10) and Higher Secondary (11-12) Education: Preparation for the World of Work: Secondary and Higher Secondary Education in India

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## 1 Abstract

Secondary education is, perhaps, the most important part of an individual's education as it is during these years that a student decides what she is going to take up for further education and how she is going to earn her daily bread. The present chapter examines the pre-vocational, secondary and higher secondary education system in India and discusses how it prepares the student for the world of work. The chapter focuses on the vocational training that is imparted during the four years of secondary (including pre-vocational education) and higher secondary education. The changing trend of vocational education at the secondary level of Indian education system is described. A description of the current state of vocational education at secondary level, different institutes/government agencies offering vocational courses, curriculum followed by different agencies, teaching methodology used, assessment methodology and certification pattern is provided. In-depth analysis of the problems faced and recommendations for the future are presented.

*Keywords:* Vocational education; secondary level; senior secondary level; preparation for work; Indian context.

## 2 Introduction

Education is not only an instrument of enhancing efficiency but is also an effective tool of widening and augmenting democratic participation and upgrading the overall quality of individual and societal life. Secondary education is, perhaps, the most important part of an individual's education as it is during these years that a student decides what she is going to take up for further education and how she is going to earn her daily bread. The years a student spends obtaining secondary education are very crucial for her development and are instrumental in deciding the course of her future life. In the Indian system of education, the students continue education on a single academic track until primary education (standard 8). As they enter

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secondary education phase (standards 9 and 10), they are provided an exposure to work education through pre-vocational courses. When they enter higher secondary education phase (standards 11 and 12), they have an option of either adopting an academic (technical) track of education or a vocational track that prepares them for work immediately. The aim of the academic track is to prepare an individual for a professional career, whereas the vocational track aims to prepare the student for work immediately after she completes her education. Given the focus of this chapter (and the book) is on how education system prepares the student for work, we have limited the scope of this chapter to vocational education made available through the secondary and higher secondary education system existing in India.

The present chapter is structured as follows. The next section provides information on the current scenario of vocational education in India. Section 3 lists out the objectives for vocational education and training in India. Sections 4, 5, 6, and 7 provide details about the agencies offering vocational education in India, details about how vocational education is funded and the pre-vocational and vocational curriculums. Section 8 represents the teaching methodology. Section 9 presents a summarization of the chapter listing out our reflections on the problems faced by the Indian vocational education system and some recommendations to improve it.

## 3 Current Scenario of Vocational Education in India

### *3.1 Education System in India*

The present education system in India mainly comprises of primary education, secondary education, higher secondary education and higher education. Elementary education consists of eight years of education. Each of secondary and higher secondary education consists of two years of education. Included in the secondary education is the pre-vocational education. This can be defined in two different directions. On the one hand pre-vocational education is basically included in the secondary education with labour market qualification courses. On the other hand it is a vocational and employment preparation (in the international context) which prepares students for the world of work. A deeper understanding of pre-vocational education will be given in chapter 7.

Higher education in India starts after passing the higher secondary education or the $12^{th}$ standard. Depending on the stream, doing graduation in India can take three to five years. Post graduate courses are generally of two to three years of duration. After completing post-graduation, scope for doing research in various educational institutes also remains open (see chapter 6).

Secondary and higher secondary education are important stages in the system of general education because it is at these points that the youth decide on whether to pursue higher education, opt for technical training or join the workforce (Planning Commission 2013). The secondary stages (secondary; higher secondary) of education consists of grades 9-12 (14-17 age). India has more than one hundred thousand secondary and higher secondary schools serving more than 30 million students (Cheney et al. 2005). These schools are affiliated with central or state boards. While secondary education is conducted in schools, higher secondary education is conducted either in schools or junior colleges. The three national level education boards are: Central Board of Secondary Education (CBSE), the Council for the India School Certificate Examinations (CISCE) and the National Institute of Open Schooling (NIOS) for distance education. Each state also has a State Education Board.

Majority of students in India exit school after 10$^{th}$ (age 15) and join the workforce due to socio-economic conditions and hence it is imperative to offer courses that would help them be better prepared for the world of work and to develop skills they can use to find better job prospects (Planning Commission 2013). Currently, as a part of the school curriculum, vocational education starts at the higher secondary stage and is run as a distinct stream parallel to the academic stream. In addition to this the Ministry of Labour and Employment (MoLE) runs numerous government and private run Industrial Training Institutes that help youth, women and disadvantaged group acquire employable skills and plays a major role in developing high quality workforce.

### *3.2 Status of Vocational Education in India*

Vocational education and training (VET) has been the blind spot of the central and state governments as well as the MoLE for the past six decades. According to the National Sample Survey Data 66$^{th}$ Round, number per 1,000 for age group 15-19 who received vocational training was 44 and even in this only 14 received formal vocational training and the rest fell in the category of non-formal vocational training. Further, it was noticed that 36% in rural areas and 24% in urban areas reported that the training was not helpful in finding a job (Government of India 2013). According to the eleventh planning commission report, even on an international level, India shows significantly low enrolment rates compared to other countries like China, USA, Russia and Germany and the proportion youth receiving formal vocational training is only about 2% as compared to 60 to 96% in other industrialized countries (Planning Commission 2008). A World Bank report on skill development in India mentions that the major problem areas in Indian vocational education

and training are: lack of sufficient private sector participation in the management of institutions and curriculum, lack of proper funding model, and a strong mismatch between the labour market and the courses offered (World Bank 2008). From a sociological perspective vocational education has been considered only suitable for students whose potential for academic courses are poor (Kumar 2009). This perception also constitutes a major challenge for planning and progress of VET.

However, in the recent years the government has taken many positive steps in improving the vocational education scenario in India. The 11th planning commission (2007-12) launched a major 'skill development mission' that was focused on developing VET programs to improve employment opportunities and impart relevant skills sets to self-employed, especially in the rural and unorganised sector. This drive made provision for development of VET through up-gradation of country's Government-run Industrial Training Institutes (ITI) and private sector ITIs. The centrally sponsored scheme of Vocationalisation of secondary education, that provides diversification of educational opportunities, was also thoroughly revised in the 11th five-year plan (Planning Commission 2008).

Another scheme that plays an important role in developing VET in India is the 'Vocationalisation of Secondary Education' initiated by the Ministry of Human Resource Development (MHRD) targeting formal school education in India. It was introduced to equip students of secondary and higher secondary classes with skills and competencies necessary to be able to enter the world of work. This scheme has proposed to expand vocational education from 9,619 schools covering 1 million students to 20,000 schools and an intake capacity of 2.5 million and to make vocational education available in schools from grade 9th instead of grade 11th (Goel 2009). The main objectives of this scheme are:

1. Diversification of educational opportunities so as to enhance individual employability;
2. Reduce the mismatch between demand and supply of skilled manpower; and
3. Act as an alternative for those pursuing higher education.

## 4 Main Agencies Offering Vocational Education and Training

VET programs are targeted at creating employment opportunities and imparting suitable skills for self- employment, particularly in the rural and unorganised sector (Agarwal 2013). There are numerous agencies providing vocational training at different levels in India. These agencies can be broadly classified under two categories: agencies providing vocational education as a part of school education and agencies providing vocational education outside school education. Given below is a brief description of these agencies.

### *4.1 Vocationalisation of Secondary Education*

The centrally sponsored scheme of Vocationalisation of secondary education was launched in year 1988 by the MHRD. This scheme provides vocational education instruction in secondary schools and is considered an alternative to the general stream of education in schools. It also provides broad guidelines with respect to management structure, curriculum design, infrastructure development, vocational surveys, instructional material, teachers and their training, school-industry linkage, examination and certification, and other aspects. This scheme offers 150 different vocational courses of two year duration at the higher secondary level i.e. XI and XII. According to the Planning Commission of India there are now about 9,583 schools offering courses in the broad areas of agriculture, business and commerce, engineering and technology, health and paramedical, home science and science and technology covering about one million students (Planning Commission 2008).

This scheme is implemented through education boards at Centre, State, and Union Territories (UT). At the national level, the CBSE, is implementing this scheme at the higher secondary level as a distinct vocational stream. Under this scheme, CBSE offers 34 vocational courses consisting of 107 subjects in its about 500 governments and government aided schools across the country (MHRD 2014b). CBSE is also making efforts to introduce more such courses in collaboration with relevant industry/organisation, and has facilities for joint certification. As per the 12$^{th}$ planning commission (2012-2017), the scheme of Vocationalisation of Secondary Education will be subsumed under the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). However, the funding pattern would remain the same and the scheme would be implemented from the secondary stage instead of higher secondary stage (Planning Commission 2013).

### *4.2 Industrial Training Institutes (ITIs) and Industrial Training Centres (ITCs)*

Vocational training outside school education is the primary responsibility of Director General of Employment and Training (DGET) in the MoLE at the national level. This is the nodal department responsible for formulating policies, laying down standards, and conducting trade testing and certification in the field of vocational training. At the State level, the State level DGET are responsible for vocational training programs. The training is provided through two different schemes – Apprenticeship Training Scheme (ATS) and Craftsmen Training Scheme (CTS).

The ATS under the Apprenticeship Act 1961 provides on the job training in various private and public firms. Period of training varies from six months to four years. Currently there are about 28,500 industrial establishments belonging to both engineering and non-engineering trades, providing apprenticeship which is quite low compared to the total number of industrial establishments in India. Also there are only 211,000 trade apprentices undergoing apprenticeship training against 359,000 apprenticeship seat (Government of India 2014a).

Craftsmen training is provided in ITIs. These ITIs are either government run or managed privately. As of March 2014, there were about 10,750 ITIs with a seating capacity of 1,523,000 imparting training in 133 trades (Government of India 2014a). Out of the total ITIs, 2,274 institutes were government run and 8,475 were managed privately. The DGET, under MoLE, has taken up scheme for upgrading 500 Existing ITIs. The first 100 ITIs are being upgraded through domestic resources and have been named Centre of Excellence and the remaining 400 ITIs have been partially funded by World Bank. (see chapter 4).

These courses are open to who have passed either standard 8 or 10 depending on the trade and are of one or two years duration (long-term courses) or two till 3 months (short-term courses), which varies from course to course (Planning Commission 2008). The resource persons for the program may be drawn from rural engineering departments of state governments, faculty of engineering colleges, polytechnics institutes and ITIs (Goel 2009).

### *4.3 Other Agencies Offering Short Vocation Training Courses*

Other than DGET there are a number of other ministries and agencies that offer vocational training in their specific sectors at the secondary level. A few of them include Ministry of Health, Rural Development, Agriculture, Textiles etc. and agencies like NIOS and Jan Shikshan Sansthan (JSS) (see chapter 12).

In addition, there are 1,244 polytechnics under the aegis of the MHRD with a capacity of over 295,000 offering three-year diploma courses in various branches of engineering with an entry qualification of 10th pass (Planning Commission 2008) (see chapter 5). Table 1 presents a summary of various programs and institution providing vocational education and training programs at secondary level. The unorganised sector that constitutes about 93% of the workforce is not supported by any structural system of acquiring or upgrading skills (Planning Commission 2008). By and large, skill formation takes place through informal channels like family occupations, on the job training under master craftsmen with no linkages to the formal education training and certification. Training needs in this sector are highly diverse and multi skill-oriented. Many efforts for imparting training through Swarnjayanti Gram Swarojgar Yojana (SGSY) – (Self-Employment Program), Prime Minister Rozgar Yojna (PMRY) – (Prime Minister Employment Scheme), Khadi and Village Industries Commission (KVIC), Krishi Vigyan Kendra (KVK) – (Agriculture Research Stations) and JSS – (People's Education) are also in place (Planning Commission 2008) (see chapter 12).

| Ministry | Schemes/Programs/Institutions having provision for Vocational Education and Training Program at secondary level | Eligibility |
|---|---|---|
| Human Resource Development | Vocationalisation of Secondary Education | Students having passed $10^{th}$ |
| Human Resource Development | Polytechnics + Institutions for diploma in pharmacy, hotel management, architecture | Students having passed $10^{th}$ |
| Human Resource Development | Community Polytechnic Scheme | Poorer section of society |
| Human Resource Development | Jan Shikshan Sansthan (Vocational Training Centres run by NGOs) | Disadvantaged groups 15-35 years |
| Human Resource Development | NIOS – Distance Vocational Education Programs (Practical Training through Accredited Vocational Institutes (AVIs) | $5^{th}$, $7^{th}$, $8^{th}$ & $10^{th}$ pass |
| Ministry of Labour(DGET) | Craftsmen Training Scheme | $8^{th}$, $10^{th}$, $12^{th}$ pass |
| Ministry of Labour(DGET) | Apprenticeship Training Scheme | $8^{th}$, $10^{th}$,$12^{th}$ pass |
| Department of Tourism | Food Craft Institutes under State Government | 10th pass |
| Ministry of Tribal Affairs | Vocational Training Centres in tribal areas | Tribal youth |
| Department of Woman & Child Development | Kishori Shakit Yojana | Adolescent Girls |

*Table 1*: Institutions Providing Vocational Education and Training at Secondary and Higher Secondary Levels. Source: Goel (2009), MHRD (2014b), DGET (2014)

## 5 Funding of Vocational Education

### *5.1 Structure of Funding*

The present VET system in India is heavily dependent on public funding. Few places where private funding exists are in-house training or in-kind contributions (Pillay 2014). Funding for the various vocational training programs are shared by the central and the state governments. The central government provides 100% assistance for the following components: apprenticeship training, district vocational surveys, textbook development workshops, instructional material subsidy, resource persons training, workshop/laboratory building, equipment to schools, teacher training courses and curriculum development workshop and 50% assistance for the following five components: vocational wings of State Directorates of Education, State Council for Education Research and Training (SCERT), district

vocational wings, provision of raw material/contingency funds and field visits by students (Planning Commission 2013). In addition to this the centre provides 75% of the expenditure on vocational school staff while the state governments fund the remaining 25%. The states have to completely finance the expenditure on conducting examinations and providing vocational guidance.

### *5.2 Vehicles of Funding for Vocational Training*

The major funding for vocational education comes from union budget allocation to different vocational education and training schemes and very little from private organisations. Two important government agencies that predominantly contribute to vocational education and training at secondary level are DGET under MoLE and the MHRD with its Vocationalisation of Secondary Education. There are also small budget allocations for vocational training to other ministries which conduct training programs in their respective areas. The budget allocation for the scheme of Vocationalisation of Secondary Education for the year 2013-2014 was Rs. 720.9 million (Government of India 2014b) and that for the training aspect of DGET was Rs. 8.2 billion (Government of India 2014c).

## 6 Curriculum

Different agencies offering VET have their own curriculum which is designed by an in-house curriculum development unit. Two important ministries providing VET in India are MHRD and MoLE. Given below are the curriculum details for both.

### *6.1 Curriculum under Ministry of Human Resource Development*

Currently vocational education is provided in schools only at the higher secondary stage, and here too it is restricted to a distinct stream parallel to the academic stream. The Pandit Sundarlal Sharma Central Institute of Vocational Education (PSSCIVE), under the National Council of Education Research and Training (NCERT), develops the curriculum for school level vocational education program under the Vocationalisation of Secondary Education Scheme. It also provides research and development, and training support to key stakeholders from states/UT. The institute draws up the curriculum in the major areas of agriculture, business and commerce, engineering and technology, health and para-medical services,

home science etc. for courses of one to two years' duration for adoption by different SCERT (Planning Commission 2013).

CBSE, which is implementing the Vocationalisation of secondary education scheme at the national level, has collaborated with PSSCIVE for developing curriculum for its vocational education stream. A detailed description of vocational curriculum under CBSE is given below:

### 6.1.1 Higher Secondary Curriculum for Vocational Stream (Class XI and XII)

The main objective of the vocational education program offered by CBSE is to develop skilled manpower through diversified courses that could meet the human resource requirement of various sectors and to prepare youth for the world of work through a large number of self-employment oriented courses. It has integrated academic and vocational education into a single programme to provide the best curricular and pedagogical practices for students so that they may have perfect linkages with world of work. Table 2 and Table 3 respectively give the scheme of studies and examples of courses implemented in the vocational stream of higher secondary schools. Currently, CBSE is offering 40 vocational courses consisting of 100 subjects in 313 affiliated schools in India and eleven schools in five countries, with coverage of approximately 37,095 students (CBSE 2014).

| S.No. | Name of the Subject | Period/week | Maximum Marks |
|---|---|---|---|
| 1 | Language 1 (English) | 7 | 100 |
| 2 | Two Subjects from Academic Stream (Science/Commerce/ Humanities) | 7+7 | 100 each |
| 3 | Two papers from any of the 34 vocational courses | 8+8 | 100 |
| 4 | One optional additional subject from either academic stream or vocational stream | 7 | 100 |
| 5 | Work integrated learning | On the job exposure 60 hours for level 1&2 and 120 hours for level 3&4 | - |
| 6 | Personality Development and Soft Skills | 2 | - |
| Total | | 6 | 500(compulsory)+ 100 (Optional) |

*Table 2:* Scheme of Studies for Higher Secondary School (Vocational Stream). Source: Scheme of Studies, CBSE Report (2014-15)

| |
|---|
| *Office Secretaryship:* Office Procedures and Practices, Secretarial Practice & Accounting, Office Communication |
| *Stenography & Computer Application:* Typography & Computer Application (English), Shorthand (English) |
| *Elective III/ Additional Subject Optional:* Office Procedures and Practices, Secretarial Practice & Accounting |
| *Accountancy and Auditing*: Financial Accounting, Elements of Cost Accountancy & Auditing |
| *Elective III/Additional Subject Optional:* Office Procedures and Practices OR Typography & Computer Application (English) OR Typography & Computer Application (Hindi) OR Store Accounting |
| *Marketing and Salesmanship:* Marketing, Salesmanship, Consumer Behaviour and Protection |
| *Additional Subject Optional:* Secretarial Practice & Accounting |
| *Banking:* Cash Management and House Keeping, Lending Operations, Management of Bank Office |
| *Electrical Technology:* Engineering. Science, Electrical Machines, Electrical Appliances |
| *Automobile Technology:* Auto Engineering, Auto Shop Repair and Practice |
| *Elective III/Additional Subject Optional:* Engineering, Science OR Applied Physics OR Civil Engineering |
| *Electronics Technology:* Electronic Devices and Circuits, Radio Engineering and Audio System, Television and Video Systems |
| *Additional Subject Optional:* Electrical Engineering OR Civil Engineering |
| *Horticulture:* Vegetable Culture, Floriculture, Post - Harvest Technology & Preservation, Basic Horticulture |
| *Any one from the following:* Olericulture OR Pomology OR Floriculture |
| *Health Care and Beauty Culture:* Beauty Therapy and Hair Designing, Cosmetic Chemistry, Yoga Anatomy and Physiology |

*Table 3*: Vocational Courses available at Higher Secondary Level: Source: Scheme Studies, CBSE (2013)

The 11th Planning Commission has spearheaded the implementation of National Vocational Education Framework in order to standardise the vocational education in India and get them under one umbrella. PSSCIVE, along with State Boards and CBSE, is developing a comprehensive competency-based curriculum with inputs from industry to allow contextualisation and localisation of content by the States.

The competency based curricula will be adopted or adapted by the Central/State Boards of Education. For quality assurance and relevance, the vocational training packages will be reviewed and revised every two-three years or earlier as per the need. A component of 'on-the-job training' would be an integral part of the curriculum. Besides technical skills, greater emphasis will be given on development of generic skills, which would include (i) basic communication skills; (ii) basic IT skills; (iii) customer care services; (iv) job seeking skills; (v) team building skills, etc. (MHRD 2014a,c).

### *6.2 Curriculum under Directorate General of Employment and Training*

Curriculum development for the CTS and ATS under the DGET is the responsibility of National Council for Vocational Training (NCVT). This is a tripartite body which advices DGET in issues related to skill development such as curriculum development, maintaining quality standards, granting affiliation to institutes etc. Similar to NCVT there are State Council for Vocational Training (SCVT) which advice respective states on skill development issues and are in-turn advised by NCVT (Government of India 2014a). The curriculum drawn by NCVT is for both engineering and non-engineering trades and is followed by both ATS and CTS. The duration of these courses last from six months to two years with minimum eligibility being eight grades pass out.

The main difference in curriculum between ATS and CTS is that the former has an added on-the-job-training feature which lasts for an extra six months or one year. The programs are broadly divided into engineering and non-engineering trade subjects and follow a semester system (see chapter 4).

The training programs have multi-entry and multi-exit provisions. This means that the trainee can opt to go to the labour market after completing broad based basic training of one year duration as well as after completing 18 months of training. Alternatively, the trainee can join training after some time for advanced/specialised training in another module of same sector. ITI pass-out trainee of the particular trade(s) from the conventional system can seek admission for advanced/specialised training in relevant sector.

## 7 Teaching Methodology

According to National Council of Teacher Education the focus of vocational courses is on self-employment or on employment that demand different capabili-

ties, competencies and practical and academic skills from the teachers. The teachers of vocational subjects should not only possess high competency in a trade or vocation but also be able to enthuse their students to undertake it as a career and develop qualities essential for achieving success in this area (National Council for Teacher Education [NCTE] 2014). The teaching methodology for vocational education, as suggested by the Council, should be able to:

1. Make students understand and appreciate the philosophy, purpose and need of vocational education and its relevance in the Indian context;
2. To impart knowledge and develop necessary competencies;
3. Develop an understanding of the scientific principles involved in a trade or vocation;
4. Develop necessary skills and values for success in a vocation;
5. Foster the desire to achieve high productive skills and competencies;
6. Induce the students for self-employment;
7. Develop the spirit of self-reliance and self-confidence among the students; and
8. Organise on-the-job training and apprenticeship programs for students.

However, according to the Twelfth Planning Commission Report there is a need to train and equip teachers in the latest skills and pedagogy for vocational education (Planning Commission 2013). It has been noted by various authors (e.g. Short 2008; Goel 2009) that lack of adequately qualified teaching and training staff is one of the major bottlenecks of the VET sector. There are only a few public VET teacher training institutes like the Advanced Training Institutes which provides teacher training for ITIs and has a limited seating capacity and a few private facilities that generate certified trainers (Wucher 2012). As a consequence, numerous non-certified trainers with irrelevant qualifications operate as trainers. This, in combination with low wages, leads to poor quality teaching staff in the VET system (see chapter 9).

### *7.1 Teacher-Qualification*

The criteria of selection for vocational teachers/trainers include qualification and minimum competency criteria decided. For standards XI and XII, teachers with post-graduation in relevant subject or graduates with minimum two years' work experience are appointed who also serve as the vocational coordinator (CBSE 2013).

For the ITI trainers in engineering trade, an engineering degree in related subject with one to two years' experience or National Trade Certificate (NTC) in related subject and four to five years of teaching/work experience is required. For non-engineering trades, the trainer needs to hold a degree or diploma in relevant subject with two to three years' work experience or a NTC with four to five years' work experience (DGET 2014). Students who enrol for the vocational stream in their higher secondary are certified by the central or state board of vocational education. Similarly, ITI students have to sit for an All India trade test and the qualifying students are issued NTC (see chapter 9).

### *7.2 National Vocational Education Qualification Framework (NVEQF)*

On 3rd September 2012, MHRD issued an Executive Order on the NVEQF (see chapter 13). NVEQF is a nationally integrated framework based on education and skills. This descriptive framework organises qualification according to series of levels which are defined in terms of learning outcome i.e. competencies a learner must possess regardless of attaining it through formal , non-formal or informal education and training. This framework has multiple pathways both within vocational education and between general and vocational education to link one level of learning to another higher level and enable learners to progress to higher levels from any starting point in the education and/or skill system. Significant elements of NVEQF are:

1. To provide multiple entry and exit between vocational education, general education and job markets;
2. To provide progression within vocational education;
3. To enable transfer between vocational education and general education; and
4. To build partnership with industry/employers.

## 8 Pre-Vocational Education in Secondary Education– A Case Study of the Prescribed and the Enacted Curriculum

The Indian government intends to create 500 million skilled workers by 2020. It should be added that 63% of India's population is between 15 and 59 years old. This proportion will continue to rise until in the year 2020 the Indian populace will be on average 29 years old. In comparison, the average age in China will then be 37 and in Western Europe even 45 years. In addition to the described demographic

trend the country's economy is rapidly growing whereby the demand for workers has increased steadily in the past and will continue to increase in the future (Betz 2007). On the supply side the labour market can expect an annual gain of about 12 million new workers entering the workforce (Majumdar 2008; FICCI 2010).

> *"The challenge therefore facing the country is how to train and equip this young population with ways and means of gaining productive and meaningful employment." (Majumdar 2008: 2)*

One possibility to meet this demand is the integration of vocational skill training into schools and curriculums – described as the vocalisation of secondary and higher secondary education. The economic prosperity and the need for workers mainly centre on the service and information sectors, which at least require a General Secondary Board Exam Certificate (World Bank 2009: 3-5). In order to gain a better understanding of the pre-vocational education in secondary education, we conducted a small research study to understand and identify the relevant curricula for content and competencies in pre-vocational subjects, and to discover what teachers think of curriculum implementation in teaching practice

## *8.1 Theoretical Framework*

The Organisation for Economic Co-operation and Development (OECD) defines the construct of pre-vocational education as follows:

> *"Pre-vocational education is mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical programmes. Successful completion of such programmes does not lead to a labour-market relevant vocational or technical qualification." (OECD 2002: 372)*

The first part of the study was approached by means of curriculum analysis (Posner 2004) along traditional curriculum theory lines (Kelly 2009). The theoretical basis for the deductive determination of the analytical category system was Reetz's (1984, 2003) curriculum-development theory, adapted for the Indian framework. This theory, which utilises three explanations or principles of curriculum relevance, was used to define the analytical category system, generating sociologically-constructed and theory-driven codes derived from existing theories and concepts to underpin empirical data analysis (Coffey and Atkinson 1996). The weighting of the principles then enables statements about educational input, structure and learning outcomes of the analysed documents.

### 8.1.1 Orientation to the Reference Disciplines: The 'Discipline Principle'

In the 'discipline principle', the selection of content and learning outcomes follows one or more reference disciplines. Scrutiny of international curricula shows that the relevant disciplines are economics, business studies, and technology. Categories were formulated using a similarity analysis of internationally-recognised academic textbooks (e.g. Appleby 1994; Mankiw 2001; Hempstead and Worthington 2004). In total, 41 criteria were defined, ten for the business area, 12 for economics, and 19 for technology. These categories for instance include 'basic principles of economics', 'market forms', 'indicators of economy', 'nature of management', 'marketing and sales management' and, in the area of technology, 'agriculture', 'computers', 'the environment and health'.

### 8.1.2 Orientation to the World of Work: The 'Situation Principle'

The 'life situations' to which curriculum content refers are derived from a functional understanding and interpreted primarily as intersubjective conditions and challenges imposed by society or the economy (Reetz 2003: 117). With regard to pre-vocational education, the world of work is the key future life situation underpinning curricula. The categories were derived from a series of reports by the National Skills Development Corporation (e.g. NSDC 2011). In total seven categories were defined which amongst others include 'compliance with rules and regulations', 'accomplishing the task on time', 'obey instructions' and 'sense of duty' (see chapter 13).

### 8.1.3 Orientation to the Individual: The 'Personality Principle'

The Selection of the categories for this principle was based on the second variant of Reetz's 'personality principle' (2003: 101) with particular emphasis on acquisition of key skills. The categories were evolved from the skills laid down in the OECD's Definition and Selection of Competencies (DeSeCo) (OECD 2005). The nine categories contain 'the ability to use language', symbols and text interactively', 'the ability to use technology interactively' and 'the ability to use knowledge and information interactively'.

The curriculum analysis was based on official documents issued by two of the national level education boards: the Secondary School Curriculum 2013 published by the Central Board of Secondary Education (CBSE 2011) and the Syllabus for Indian Certificate of Secondary Education (ICSE 2013) formulated by

the Council for the Indian School Certificate Examinations (CISCE 2013). These curricular documents are used across regions in many lower secondary schools (Quality Council of India n.d.: 8). The selection of subjects covers 'social science', 'work education' and 'commerce' from the CBSE curriculum and 'socially useful productive work and community service' (SUPW), 'economics', 'commercial studies' and the subject cluster 'history, civics and geography' from the ICSE 2013.

Subsequent to the curriculum analysis, practising teachers in Tamil Nadu were interviewed with the primary aim of assessing how far these curricula were being implemented. Theories relating to the 'prescribed curriculum' and the 'enacted curriculum' (Bloomer 1997, Edwards et al. 2009) formed the theoretical basis of this process. Research on curriculum implementation takes various approaches, the most common being the programmed or 'fidelity approach' or the 'true to the original' approach (Snyder et al. 1992: 404). The aim is to discover how faithfully implementation follows planning and which factors promote or hamper implementation (Fullan and Pomfret 1977: 340). The referred research adopted this key idea and therefore used semi-structured interview guidelines to reflect the fact that a more open-ended instrument would best capture the various factors influencing teachers' comments and assessments (Kirk and Macdonald 2001).

## *8.2 Findings*

### 8.2.1 Findings from the Curriculum Analysis

The Analysis of the data (see Table 4 and Figure 2) shows that the 'discipline principle' dominates the curricula and that while categories from the 'personality principle' were also frequently coded, the 'situation principle' played a very secondary role.

| | **Discipline principle** | **Situation principle** | **Personality principle** | ∑ |
|---|---|---|---|---|
| **Secondary School Curriculum 2013 (CBSE)** | 94 (75%) | 7 (6%) | 24 (19%) | 125 (100%) |
| **ICSE 2013 (CISCE)** | 111 (80%) | 12 (9%) | 16 (11%) | 139 (100%) |

*Table 4:* Number of codings for each principle (in absolute and proportional terms). Source: Krisanthan (2013)

Within the ‘discipline principle’, economics dominates both curricula because it is one of the subjects in the social science cluster, which made up the majority of codings. As well as ‘government policies and their influences’, which is heavily represented in both curricula (14 codings in each case), there is considerable emphasis on ‘trade and globalisation’, particularly in the CBSE curriculum, with nine codings. ‘Labour market’ had a total of 11 codings, along with ‘production and operation management’ from the business area (16 codings). ‘Food and agriculture’ and ‘environment’ are important in both curricula (21 codings each).

Relatively few codings were identified from the ‘personality principle’, which was coded almost exclusively within ‘social sciences’. Here, the focus was on developing the key ability to ‘relate well to others’. Skills like ‘the ability to act within the big picture’ and ‘the ability to assert rights, interests, limits and needs’ were emphasized.

The ‘situation principle’ did not play a particular role in both curricula. In individual subject areas in the ICSE curriculum the focus is on practical skills and giving students initial work experience in various aspects of employment. This applies particularly to ‘SUPW’, ‘economics’ and ‘commercial studies’, where the emphasis is also on ‘stamina and tolerance of frustration’ and ‘sense of responsibility’ as well as on the ‘ability to operate strictly according to the procedures’ and ‘accomplishing the task on time’.

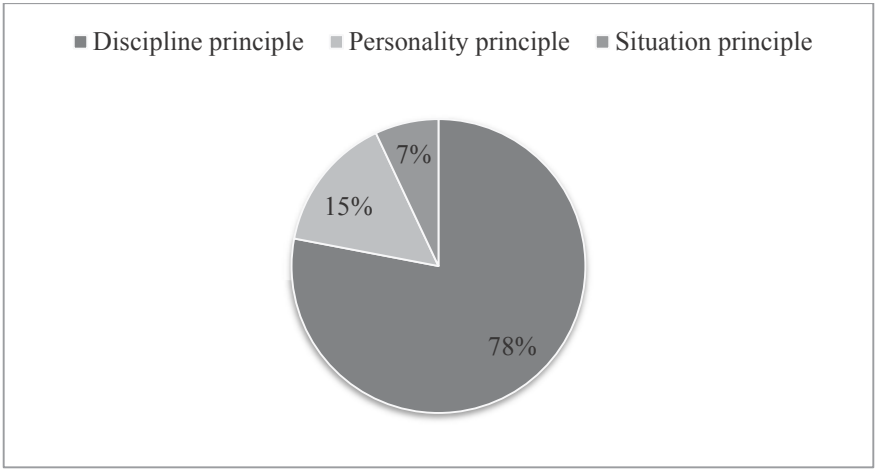


*Figure 1*: Aggregation of the findings in both curricula. Source: Krisanthan (2013)

### 8.2.2 Findings from the Teacher Interviews

Tamil Nadu is India's southernmost state and was identified for the sample because it has both modern urban areas and developing rural areas. Eleven teachers were interviewed; a few said they did not really know the curriculum. Because research resources were limited, the study was restricted to the state of Tamil Nadu, where both curricula are taught.

Most interviewees saw secondary education as a stepping-stone to higher education, and none mentioned direct transition to the labour market. Students' future role as employees therefore played virtually no role in the daily teaching practice of these teachers: as one summed up, "Occupational knowledge is not taught."

According to most teachers, vocational orientation happens as students prepare for higher levels of education, although the only occupations mentioned are those that require a degree and offer a good standard of living. One teacher said specifically, for example, that he wanted his students (predominantly from lower socio-economic classes) to become engineers because of the high salaries engineering and comparable academic jobs offer. Another said,

> *"The job that they take definitely cannot [be chosen in lower secondary], now they cannot decide. Normally (…) in India (…) whatever course they have taken in the higher secondary alone is going to help. But till 10th standard, all this must help for one to live in this society."*

Although these teachers also thought personal development was important, most interviewees thought the crucial aim of the curriculum was academic content for the final examination, so this was what they focused on. One teacher said,

> *"50% will be just concentrated on teaching our subject knowledge and another 50 maybe for the economic development and the personality development for their future career."*

Asked which learning outcome the teacher thought was most significant, another told us,

> *"The three aspects are given (…) but we are not able to give these activities. (…) They [the students and the government] want to get marks alone."*

Teachers were critical of the fact that both the authorities and students valued only final examination grades, which made it more difficult to focus on areas other than academic knowledge.

The interviews showed clearly that the 'discipline principle' is considered by far the most important, with only a few interviewees citing content from business studies, economics or technology. The most important sub-discipline in social

science and, hence, pre-vocational education was history, which can be explained in particular by teacher training. Geography and politics were mostly regarded as having the same importance, while content from business studies and economics were viewed as less important in pre-vocational education. One interviewee commented that while students would be interested in these areas and motivated by them, most teachers knew very little about them.

## 9 Reflections

Vocational skills training needs to be integrated into school and college curriculums, and the national mind-set which segregates academic education from hands-on skills requires a sea-change. That's the bigger challenge confronting teachers and academics engaged in the task of educating and preparing the world's largest child population for the 21st century. With tangible action items and goals for each department the scope for reforming vocational education in India looks promising. However, there are a lot of challenges. The carefully crafted government-industry initiative to establish a national VET infrastructure which will provide upskilling opportunities to India's huge 509 million low-productivity labour force may bear fruit. But this government-industry effort also needs to be supplemented by India's educators' community and academia (Thakore 2010). Given below are our own reflections on the problems being faced by the Indian vocational education system and some possible remedies?

### *9.1 Collaborative effort by Ministry of Human Resource Development and MHRD and Ministry of Labour and Employment*

For a complete and well-defined vocational education plan, it is important that MHRD and MoLE work together. A strong linkage between senior secondary schools with vocational stream and ITIs will allow both the institutions to mutually benefit from their curriculum and pedagogy, which in turn will improve employability and vertical mobility of the students. In addition, a joint effort between NCVT and NCERT in developing the National Curriculum Framework for Vocational Education would be more impactful.

### *9.2 Short Term Vocational Courses in High School*

At present, most of the courses available in higher secondary schools focus on employment in organised sector of the economy. Equal importance needs to be given to short-term courses, oriented towards opportunities in the unorganised sector. Certain short-term courses can also aim at self-employment or improving the skills of young people already working in the unorganised sector in the neighbourhood of the school. Such courses can be organised in after-school hours or evenings.

The identified primary goal of pre-vocational education in India is not the preparation for the labour market. The main objective is to enable the students for current life situations and for the successful transition to the higher.

### *9.3 Training versus Education*

Vocational Training has always been treated as a distinct and separate entity from the general education. This causes uneven and incomplete preparation for work, and fewer takers for vocational training. Hence, it is important to change people's perception of vocational education and make it a part of mainstream education.

The case study of teachers in Tamil Nadu showed that the implementation of the curricula to a large extent depends on the interpretation by the teachers, which is mainly influenced by the particular educational background. Therefore, it becomes very necessary that within the educational system and the society in general, another urgent educational policy action can be seen in the appropriate teacher training.

## 10 Conclusion

The objective of this chapter was to examine Indian VET system at the secondary and higher secondary school level and understand various schemes, agencies and policies that are preparing the students for the world of work. This chapter describes the challenges faced by the Indian VET system with 'low employability of VET graduates due to skill mismatch' being the most critical one. The mismatch between VET graduate's acquired skill-set and the industry requirement is at the core of the failure of Indian VET system. The way forward for its success would be extensive curriculum reform and streamlining of the VET regulatory bodies.

With 'Skill Development Mission' as a priority, both public and private agencies are recognising the importance of vocational education in the nation's

development. This is a promising start. However, with major issues to be ironed out, Indian VET has far to go before it establishes itself as a successful framework.

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