Matthias Pilz *Editor*

India: Preparation for the World of Work

Education System and School to Work Transition

Springer VS

India: Preparation for the World of Work

Matthias Pilz (Ed.)

India: Preparation for the World of Work

Education System and School
to Work Transition

Springer VS

Editor
Matthias Pilz
Köln, Germany

Table of Contents

Foreword: Reflections on Opportunities and Challenges of Skills Development in India

Shyamal Majumdar

1   Introduction

India, with a population of 1.2 billion and a workforce of more than 500 million, has maintained a stable Gross Domestic Product (GDP) growth rate until 2008 when the global financial crisis hit many countries worldwide. The economy has shown signs of accelerated GDP growth up to 7.5% in the last quarter of 2015, a striking development for one of the world's fastest growing large economy, according to the Financial Express (2015). This impressive growth of the economy has fuelled a surge in the demand for skilled workers in India in spite of severe skills shortages in the organised and unorganised sectors.

The National Skill Development Corporation (NSDC) of India has recently commissioned a study undertaken by the KPMG on skills gaps in 24 emerging sectors of Indian economy[1]. Findings of the study suggest the incremental human resource requirement across these 24 sectors, which is nearly 109.73 million whereby the top ten sectors account for about 80% of requirements (Government of India 2015).

The objective of the study is to understand the sectorial and geographical spread of skill requirements that exist. The estimates are based on an extensive stakeholder engagement including small, medium and large enterprises in every sector, as well as Sector Skill Councils (SSCs), training providers in the skills space and academia. The studies provide granular data on the skill gaps for two time periods – 2013-17 and 2017-22. The reports highlighted massive industry requirements estimated at close to 109 million skilled workforces over the next decade (Government of India 2015).

Persisting skills gaps in the Indian labour market have been a serious concern for both policy makers and industrialists in India in the recent past. Various other studies have highlighted skills gaps in different sectors in India (Mehrotra 2012; Chenoy 2012; Jamal and Mandal 2013). It has become apparent that over 2% of the Indian workforce (aggregated data) has skills training in formal vocational education. Only 2.4% has received informal vocational training (Mehrotra

---

1 NSDC Reports per State and Sector can be found here: http://www.nsdcindia.org/nsdcreports

2012). The graduates who have received vocational education also lack the skills required in the labour market. Thus, graduate employability continues to be a set-back. There is limited formal link between general education and vocational training in the country. In addition, the labour market in India is undergoing a dynamic change. With this as a backdrop, the NSDC in 2009 estimated that over the next 15 years, 365 million people are expected to be eligible to join the workforce and about 11–13 million people are expected to look for employment opportunities each year (Government of India 2009).

2 Opportunities and Challenges

India's growth story is faced with opportunities and challenges. India is set to become one of the youngest nations in the world by 2020, a looming opportunity for India. The average working Indian will only be 29 years by 2020 as against 37 in China and more than 45 in the developed countries. India stands to gain from the huge number of its young people (Government of India 2011).

While the future demographic dividend will present opportunities, challenges are posed by persistent skills gaps both in quantity and quality. Graduates who receive vocational education largely lack in practical skills required in the world of work. They are also on the frontline of the job unemployment and decent work that continue to challenge the sector.

2.1 Addressing the Challenges

Two major things need to be looked into if Technical and Vocational Education and Training (TVET) was to be seen a solution. It is important to understand what type of vocational education and training is needed and how such VET provision support the immediate demands of the economy. This calls for a radical restructuring of TVET in India appropriately tapping for TVET's transformative role in supporting economic, social and environmental dimensions of development. TVET needs to be re-organised differently in ways that create opportunities for the big margin of population trapped in the informal and unorganised sectors and target quality knowledge and skills outcomes for those already in the formal TVET systems. A multi-stakeholder partnership involving the public and the private sectors, the community and other stakeholders is needed to develop a comprehensive TVET Act to back these goals and open pathways for implementation. The practical component of vocational education and training is largely limited in India

particularly at Secondary education level. It was not largely supported by company-based or workplace-based training. Restructuring TVET means embedding compulsory practical component built in TVET provisions in which industry associations, sector councils and companies could have an active role to play.

Identifying emerging skills and qualifications requirements in the world of work and ensuring that education and training meet these qualifications needs will address relevance and make the time spent in schools and training venues more meaningful and purposive for many young people. In terms of quality, updating curricular content to reflect industry-required skills, modernising training delivery to attract more youth to take TVET courses and innovating school-to-work transition to ensure employability skill are among the things that could render TVET to cater to economic demands. Indeed, TVET is high on the agenda of many countries and its further development is attributed to its high potential to produce skilled and technical workforce to support socio-economic opportunities.

Private sector engagement is critical in successfully facilitating school-to-work transition. This is proven in countries that have historically integrated the participation of the private sector and other social partners in implementing TVET like in Germany, for example, in delivering its dual training system/dual study system/apprenticeship model. Looking at Germany's economic development path, the last 40 years saw how the German industrial sector advanced from a production-based economy to a knowledge-based economy driven by technology and innovations. Combining theory with practice-based training in workplace settings, as well as applied research have gone a long way in taking TVET far from the traditional concept of manual labour, albeit challenges in the overall image is inevitable in Germany.

A large part of the industrial employment problem, however, emanates from the mismatch between the skill requirements of employers and the skill base of job seekers. Presently, about three million graduates and post-graduates are churned out from the countries' colleges and universities. But a majority of them lack the skills necessary for acquiring jobs in the growing sectors of the economy. The expansion of education, particularly higher education, has produced numerous graduates and post-graduates, but shortages of middle-level technicians and those who possess supervisory skills persist. This mismatch between demand and supply of skills in the labour market and the perceived shortage and poor quality of trained persons is likely to become an impediment in the path to sustained economic growth in the absence of timely corrective measures.

India will add one million new entrants to the labour market force every year. One of the biggest challenges for India is to unlock the latent potential of the millions of the young entering the workforce through skill training and skill fore

casting. This needs to correspond with promoting the demand for greater productivity of the existing workforce and future needs of the country.

3 Inclusiveness

The task of workforce development in India has been faced with changing realities of globalisation on the one hand, and the need for inclusive growth on the other hand (Majumdar 2008). The low literacy rate and a lack of skill training for a vast majority of the Indian populace pose a major hurdle to move forward into a knowledge economy. Therefore, policies to ensure higher quality education and the expansion of vocational education and skill training for the poor and underprivileged are needed in order to produce a new generation of educated and skilled workforce who are flexible, analytical, and can serve as driving forces for innovation and growth.

The current growth in various sectors, being mainly urban centred, has also failed to incorporate the vast majority of the rural poor and other backward sections of the society. With nearly 70% of the population living in rural areas, India remains a predominantly agricultural society. Though the agricultural sector has seen considerable growth in the five decades since independence, with substantial increases in agricultural production, the general livelihood of the rural population remains low. A lack of education in general, and employable skills in particular, leaves very few options for these people to do anything other than rely on raw labour for their livelihoods resulting in low earnings and subsequent poverty. Therefore TVET development at community level will address the inclusiveness of growth, promote TVET relevance with the immediate economic and social needs of communities and create job and entrepreneurial opportunities.

4   Skills Agenda as a National Priority

This book will be published on the timely occasion of upholding skills development high on the agenda and pursuing sustainable growth and developing India within this framework. The launching of a new Ministry of Skill Development and Entrepreneurship is a welcome development towards this end. The new Ministry is responsible for the co-ordination of all skill development efforts across the country, minimizing the gap between demand and supply of skilled manpower, building the vocational and technical training framework, skill up-gradation, building of new skills, and innovative thinking not only for existing jobs but also jobs that are to be created. The Ministry aims to improve skill development on a large scale with an emphasis on speed and high standards in order to achieve its vision of a 'Skilled India'. The pursuit of these mandates is aided by its functional arms – National Skill Development Agency (NSDA), NSDC, National Skill Development Fund (NSDF) and 33 SSCs as well as 187 training partners registered with NSDC. The Ministry also intends to work with the existing network of skill development centres, universities and other alliances in the field. Further, collaborations with relevant Central Ministries, State governments, international organisations, industry and Non-governmental Organisations (NGOs) have been initiated for multi-level engagement and more impactful implementation of skill development efforts.

India is utilising different strategic approaches to skills development:

   i.   strengthening TVET systems;
  ii.   engaging the private sector in TVET actively;
 iii.   aligning skills policy with national agenda of inclusive growth and
  iv.   integrating skills for sustainable development and green growth.

In this regard, India has come up with three macro-level initiatives to accelerate skills development. Public-Private Partnership model has been evidenced through the creation of NSDC, an initiative with a 51-49 equity ratio between the private sector and the government. The formation of Sector Councils and the adoption of schools by the private sector have also demonstrated the non-negotiable role of the private sector in skill development. These efforts need to be sustained and cultivated to develop more innovative partnerships that engage industries and the private sector in partaking in delivering education and training since the sector stands to benefit from this on a longer term. The participation of the private sector in quality assurance and regulatory mechanisms will raise greater confidence in skills outcomes and qualifications. These developmental interventions and more are needed to expand and scale up the outcomes of TVET. Scaling up the existing

TVET provisions is not enough without pursuing TVET transformations under-pinning life-long learning, sustainable development and greening, innovation, multi stake holder partnership and inclusiveness. In pursuit of this goal a number of key challenges need to be overcome including image of TVET, horizontal and vertical mobility, private and community engagement, updated curricula and quality, TVET teacher training, skill mismatch, recognition of non-formal, informal and prior learning and qualification framework.

5   Skills Agenda as Global Priority

Importantly, the publication of this book is also timely as it coincides with the efforts of many countries in articulating the importance of skills development and sustainable development in the Post-2015 education agenda. The central focus of UNESCO in making education and training relevant for the Post-2015 discourse is to ensure inclusive, equitable and quality education and to promote lifelong learning opportunities for all. The agenda is transformative, universal and inspired by a humanistic vision of education based on human rights and ethnic diversity. The agenda commits to promote quality lifelong opportunities for all in all settings and at all levels. This includes equitable and increased access to quality TVET for work and life and literacy for both youth and adult including gender equality becomes top priority. To do this, countries have committed, through the Incheon Declaration at the World Education Forum, to increase public investments in education according to country context and better align priorities with regional and international benchmarks. The multi-stakeholder-driven declaration is solidly backed by UNESCO, together with UNDP, UNFPA, the World Bank, UNICEF, UNCHR and UN Women, each representing educational mandates and initiatives through which Member States will be supported at country-level implementation and arrangements.

In alignment to these are similar efforts of global and regional players such as the ILO, OECD, ASEAN, SAARC and ADB. Educational transformations are underpinned in the fourth Sustainable Development Goals (SDGs). The ILO actively seeks to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, which stands as an important leverage to take forward the decent work agenda as part of the SDGs.

Within the framework of developments taking place in India, there is much confidence that India with its potential to strongly pursue its long-term skills development goal within its national agenda is aligning itself with the global discourse and as such is moving ahead as an important global partner and player in making policies work.

References

Chenoy, D. (2012): Skill Development in India - A Transformation in the Making. In: Skill Development in India. Pp.199-207. URL: http://www.idfc.com/pdf/report/2012/Chapter 18.pdf.

Financial Express (2015): Indian Economy to grow at 7.5% in 2015 - Moody's. URL: http://www.financialexpress.com/article/economy/indian-economy-to-grow-at-7-3-in-2015-moodys-analytics/64449/.

Government of India (GoI) (2009): National Policy on Skill Development. URL: http://labour.nic.in/upload/uploadfiles/files/NationalSkillDevelopmentPolicyMar.pdf.

GoI (2011): Human Development. In: Economic Survey 2011-2012. Pp. 301-336. URL: http://indiabudget.nic.in/budget2012-2013/es2011-12/echap-13.pdf.

GoI (2015): Minister of Skill Development and Entrepreneurship Shri Rajiv Pratap Rudy Launches Human Resource and Skill Requirement Reports for 24 Priority Sectors. Press Information Bureau. URL: http://pib.nic.in/newsite/PrintRelease.aspx?relid=118098.

Jamal, T. and Mandal, K. (2013): Skill Development mission in vocational areas – mapping government initiatives. In: Current Science, Volume 104, No. 5, pp. 590-595.

Mehrotra, S. (2012): India's Skill Challenge: Reforming the Vocational Training System to realize the Demographic Dividend. Oxford: Oxford University Press.

Majumdar, Shyamal. (2008): Workforce Development in India: Policies and Practises. Tokyo: Asian Development Bank Institute.

UNESCO (several years): General information. URL: www.unesco.org

Introduction: Why India's Focus on Preparation for the World of Work is Highly Relevant

Matthias Pilz

Labour and employment have a central significance in the social discourse of many countries (cf. e.g. OECD 2000). There, not only questions of structure and organisation of work are analysed, but besides income also aspects of personal satisfaction and social recognition play an important role among others (Rifkin 1995).

In this book, a special focus should be taken up: It deals uniquely with the preparation of youths and young adults for the 'world of work'. Here, this so-called construct 'world of work' should be understood comprehensively. It deals with the aspect of 'school to work transition' in the broadest sense (Raffe 2008; Stern and Wagner 1999; Ryan 2001; Müller and Shavit 1998). Besides realised income, aspects of socialisation, personal development, social participation and classification, the specific occupation, and the personal perception regarding satisfaction etc. need to be examined (Heinz 1999). In addition to the personal and societal side of 'school to work' transitions, attention needs to be paid to the structural and institutional conditions necessary for managing transitions between educational stages and different types of vocational education and training (Ecclestone and Kumpulainen 2012). Besides all forms of initial (technical) vocational education (Goel 2008), pre-vocational education (OECD 2002: 372) as well as the field of academic education, which prepares for the working life, consequently belongs like further education to this book's focus.

The aspect 'preparation' stated in the title should be understood in terms of the classic claim in educational science to enable the next generation through the transfer of knowledge and skills as well as experience to cope with the requirements of the world of work.

The answer to the question, why the discussion about the 'Preparation for the World of Work' is especially in India of enormous importance, is one side of the coin. The other side arises from the international context. Here, it needs to be asked why particularly India is a crucial country to be analysed regarding the topic.

Both perspectives are of multidimensional nature because some aspects or rather challenges are of exogenous origin, thus are located outside the education system and others relate to the education system itself. Without trying to realise a

completed discussion at this point, there are at least the following essential points to state:

- India is a huge country and its area is the seventh largest worldwide. With a population of more than one billion inhabitants and a number of persons employed of over 500 million people, it even ranks second. Despite the global economic crisis of the last years, the country reached an economic growth by an average of 8.5% p.a. in recent years and belongs to the fastest growing national economies worldwide (UNESCO 2011). Consequently, from an international perspective it is crucial, to deal in-depth with the developments in the context of the education and employment system in this globally important country.
- Furthermore, the country has a very young population. In 2021, about 66% of the population will be between 15 and 59 years old and thus at an employable age (World Bank 2013). With this, India has averagely one of the youngest populations worldwide. Due to high birth rates, this number will even increase over the next years. According to estimates, 70% of all Indians will be at an employable age by 2025. This can be an important advantage compared to other nations, but it assumes that the high number of young people actually also find employment. At the same time, it also confronts the country with huge challenges to qualify the potential workers appropriately in order to participate in the growth and to generate prosperity and satisfaction (Hajela 2012; Agrawal 2013). If the majority of this manpower will remain unused, this 'demographic dividend' could also change quickly into a 'demographic disadvantage' (Mehrotra 2014).
- At the same time, India faces a skill gap (Mehrotra 2014) because especially at the intermediate skill level (below academic track), and here in the blue collar sector, there is a huge demand due to the economic development on the Indian labour market. However, the available workers on the market only rarely have adequate qualifications for this part of the employment system. Thus, manifold mismatches emerge where, for example, on the one hand, the craft and manufacturing sector desperately looks for skilled workers and, on the other hand, young job starters cannot find adequate employment.
- From an international perspective as well as from an internal viewpoint, a dominant, special characteristic needs to be considered in India, too. India has a large informal sector that accounts for around 60% of the country's economic output and employs more than 90% of all workers (World Bank 2008; ILO 2002). This economic and labour market is very

large by international standards, and no one can ignore it in terms of training and labour market policy (ILO 2002; King 2012). In the informal sector of the Indian economy, 'skill acquisition' takes place in many cases through non-formal or informal learning (cf. underneath). The National Sample Survey of India (2006) reveals that among persons of age 15-19 only about 2% reported to have received formal vocational training and another 8% reported to have received non-formal vocational training. For the employees in the informal sector, there is no certification of acquired skills which limits the transparency and mobility.

- It is surprising that despite the important role of the topic, there is a relatively low number of research findings existing. Particularly empirical research findings on vocational education are mostly only available in a fragmented and shattered way or rather focused on single, partial aspects. Consequently, there is a research desideratum which should at least be approached by bringing together the existing findings through this book.
- One reason for the rudimentary and shattered state of research is that there is no comprehensive research community in the context of TVET research in India so far. Important research institutions like, for example, the European Centre for the Development of Vocational Education (CEDEFOP) in Europe are missing as well as bigger, research-oriented, academic training courses. The absence of a research community cannot be healed by bringing together distinguished Indian researchers from different sub-disciplines. However, it could be a step towards an interlinking and thus a formation of a research community in the future. It is also necessary to revisit some current research priorities in India, which tend to concentrate more on the traditional supply-demand orientation (Majumdar 2011) rather than on creating reliable data and information on the type and purposes of different kinds of vocational education vis-à-vis employment, social equality, innovation, and opportunities for further education and qualifications.
- Finally, it strikes that there is in fact a large number of introductions and overviews dealing with the Indian education system. However, they are in many cases of shorter and more rudimentary nature, they only exist as reports, or they only have a low scientific substance. In addition, there are various books and articles in scientific journals which solely deal with single parts of the Indian education system. According to our knowledge, there is no comprehensive standard work about the entire Indian spectrum of learning and the preparation for the world of work so far.

Therefore, this volume aims to provide a comprehensive access to the topic from an educational science and vocational pedagogics view. This should offer Indian and international readers an overview in a problem-oriented, detailed and up-to-date way.

In light of the above outlined realities, the crucial question arises, how Indian youths get prepared for the world of work, or as Majumdar (2008: 2) states:

> *"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".*

For the elaboration of the topic 'Preparation for the World of Work' it was important to acquire well-known and distinguished Indian scholars with a long-standing experience in the elaboration of individual partial aspects.

The intention during the planning of this volume was to approach the topic 'Preparation for the World of Work' problem-oriented and not to focus only on structures of the education system. Although these structures largely serve for the introduction and outline of the articles (from primary, secondary, and higher education level up to vocational education), they are not dominant in the articles themselves. The primacy of the approach was the critical analysis and interpretation of the problem definition or rather of the topic.

It is self-explanatory that through this approach a profound basis for descriptive-oriented structures and data was set, because for readers with less prior knowledge the analysis and interpretation have to be complemented with a respective, descriptive background and basic information. These descriptive aspects, however, are not lexically introduced in the articles but they are rather embedded in the respective problem context so that they serve as a thread for the necessary introduction of descriptive parts.
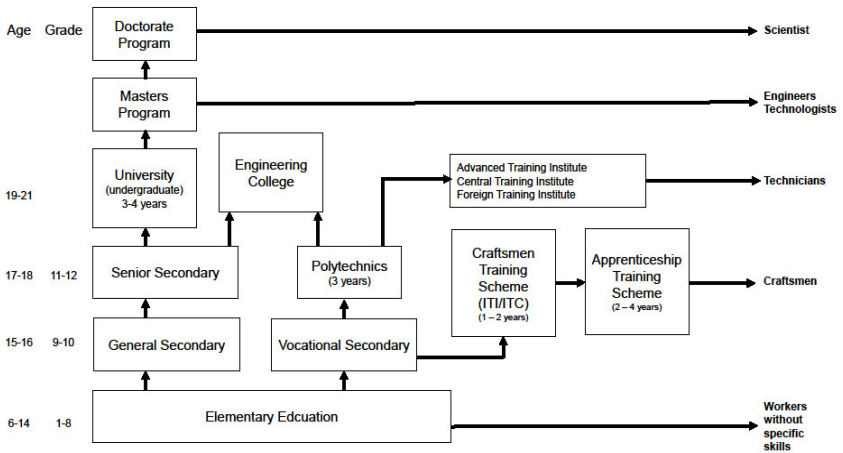
Figure 1: Indian Education System. Source: Own illustration (based on World Bank 2008)

For the reader who is less acquainted with the formal Indian education system, a first overview is provided at this point which is respectively focused and differentiated in the following chapters. Therefore, the subsequent overview deliberately includes solely the main paths through the system in order to offer basic information and to not block the view on the essentials.

As already explained, the form of the topics and the order of the articles are mainly oriented towards the structure of the educational institutions gone through by Indian children, then youths and finally young adults.

As already indicated above, there are, however, also other forms of learning which play a significant role. These were to be considered here in own paragraphs and chapters. For a definition, it was consequently reverted to a recognised construct by the UNESCO (2012: 9), which states:

> "*Formal learning takes place in education and training institutions, leading to recognised diplomas and qualifications. Non-formal learning takes place alongside the mainstream systems of education and training and does not typically lead to formalised certificates. Non-formal learning may be provided in the workplace and through the activities of civil society organisations and groups (such as in youth organisations, trades unions and political parties). It can also be provided through organisations or services that have been set up to complement formal systems (such as arts, music and sports classes or private tutoring to prepare for examinations). Informal learning is a natural accompaniment to everyday life. Unlike formal and non-formal learning, informal learning is not necessarily intentional*

> *learning, and so may well not be recognised even by individuals themselves as contributing to their knowledge and skills."*

All authors received key questions in advance (cf. figure 2) which – depending on the topical focus – were to be considered when elaborating the articles with different emphasis and intensity in order to achieve a certain structure and coherence of the articles in a very diverse topic area and also to provide the reader with a central theme as orientation. These key questions have been formulated relatively open to integrate as many facets as possible. Moreover, these questions were supposed to offer the authors a first access to their topic from which the detailed analysis and the interpretation should follow subsequently.

      As regards content, the key questions were derived accordingly to the topic 'Preparation for the World of Work' from the international discourse, particularly from the areas occupational orientation, transition research, curriculum research, skills development as well as acceptance and labour market research.

- What are the main aims to prepare persons for the world of work (official government and other key players)?
- What kind of institution is offering programs (on your level of the education system)?
- How is the funding and other financial aspects (budget) organised?
- Is there a special curriculum (or part) to prepare for the world of work and what are the details (separated subjects or embedded structure, how many teaching hours per year)?
- Who is responsible for the design and implementation of the curriculum on national, regional, and institutional level?
- Which part of the curriculum is compulsory or elective?
- Please describe the related content and give proper examples in detail.
- Is there a gap between the prescribed /written and the enacted curriculum (what are the reasons)?
- What kind of teaching and learning environments and methods are suggested and are in use?
- What kind of teachers (education, practical experience, etc.) is involved and what is their formal qualification to become a teacher?
- What kind of certificate can the students get?
- What is the expectation of pupils /students to join the classes?
- What are the advantages to join the classes (smoother transition, lower unemployment rate, improvement of general VET knowledge in the workforce, etc.) from the macro-economic perspective?

In addition, the cultural aspects and the understanding of society are of great interest:

- What are the value / status / reputation of this kind of content in comparison to general education contents in society (and parents)?
- What do the employers (organisations) articulate about the content (important, realistic, up to date, acceptance of certificates)?
- Is there any national or regional political strategy or initiative to force the preparation for the world of work in your sector of the education system?
- What will be the future of the preparation for the world of work?

Figure 2: Key questions for the authors

The chapters intend to show the interaction and to offer further opportunities for information. The final chapter written by the two editors tries to provide an overview of the topic as a whole. Thereby, relations between the parts are disclosed and conclusions are drawn.

I would like to warmly thank all authors for their high level of commitment to elaborate the topics and research meticulously. Without this admirable motivation it would not have been possible to accomplish such a sophisticated and relevant analysis on the topic 'Preparation for the World of Work'.

Special thanks go out to Dr. Madhu Singh (UNESCO Institute for Lifelong Learning, Germany). She supported the book project strait up from the beginning. During very fruitful discussions she gave many important comments and also held to acquire experts out of the field in India to become authors.

I would like to thank all, who supported this book as a reviewer or in other terms with their detailed and experienced critical-constructive comments, which have contributed significantly to the development of high-quality chapters. In this context may be mentioned: Prof. Dr. Santosh Mehrotra (Centre for Informal Sector and Labour Studies, Jawaharlal Nehru University, India), Maren Verfürth (Federal Institute for Vocational Education and Training (BIBB), Germany), Ulrich Meinecke (iMOVE International Marketing of Vocational Education, Germany), Prof. Dr. Gregor Lang-Wojtasik (University of Education Weingarten, Germany), Monika Muykens (iMOVE International Marketing of Vocational Education, Germany), Dr. Daniel Werner (Bavarian-Indian Center, Germany) and Janet Fraser (Freelance Language Services, UK).

Furthermore, I would like to express particular thanks to Ms. Antje Wessels (University of Cologne, Germany) who supported the printing of this volume significantly.

References

Agrawal, T. (2013): Vocational Education and Training Programs (VET): An Asian perspective. In: Asia-Pacific Journal of Cooperative Education. Vol. 14, No. 1, pp. 15-26.

Ecclestone, K / Kumpulainen, K. (2012): Too Much Talk on Transitions?. In: LLinE. Lifelong Learning in Europe. Vol. 1. URL: http://www.lline.fi/files/issues/1 2012.pdf.

Goel, V. P. (2008): Technical Vocational Education and Training (TVET) System in India for Sustainable Development. URL: http://www.unevoc.unesco.org/up/India Country Paper.pdf.

Hajela, R. (2012): Shortage of Skilled Workers: A Paradox of the Indian Economy. SKOPE Research Paper, No. 11.

Heinz, W. R. (1999): From Education to Work: Cross-National Perspectives. Cambridge: Cambridge University Press.

International Labour Organization (2002). Women and Men in the Informal Economy: A Statistical Picture. Geneva: ILO.

King, K. (2012): The Geopolitics and Meanings of India's Massive Skills Development Ambitions. In: International Journal of Educational Development. Vol. 32, No. 5, pp. 665-673.

Majumdar, S. (2008): Workforce Development in India: Policies and Practices. Tokyo: Asian Development Bank Institute.

Majumdar, S. (2011): Revisiting Research Priorities in TVET. In: Towards a New Global World of Skills Development? TVET's Turn to Make Its Mark. In: NORRAG News. No. 46, pp. 107-109. URL: http://www.norrag.org/en/publications/norrag-news/online-version/towards-a-new-global-world-of-skills-development-tvets-turn-to-make-its-mark/detail/revisiting-research-priorities-in-tvet.html.

Mehrotra, S. (2014): Quantity & Quality: Policies to meet the twin challenges of employability in Indian labour market. In: The Indian Journal of Industrial Relations: A Review of Economic & Social Development (IJIR). Vol. 49, No. 3, pp. 367-377.

Müller, W. and Shavit, Y. (1998): From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations. Gloucestershire: Clarendon Press.

National Sample Survey (2006): Status of Education and Vocational Training in India (2004-05). NSS 61st Round Report, No. 517. New Delhi: Government of India Press.

OECD (2000): From Initial Education to Working Life-Making Transitions Work. Paris: OECD.

OECD (2002). Education at a Glance: OECD Indicators 2002. Paris: OECD.

Raffe, D. (2008): The Concept of Transition System. In: Journal of Education and Work. Vol. 21, No. 4, pp. 277-296.

Rifkin, J. (1995): The End of Work: The Decline of the Global Labor Force and the Dawn of the Post-Market Era. New York: Putnam's Sons.

Ryan, P. (2001): The School-to-Work Transition: A Cross-National Perspective. In: Journal of Economic Literature. Vol. 39, No. 1, pp. 34-92.

Stern, D. and Wagner, D. A. (1999): International Perspectives on the School-to-Work-Transition. New Jersey: ERIC.

UNESCO   (2011):   UIS   Statistics   in   Brief: India.   URL: http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=289&IF_Language=eng&BR Country=3560&BR Region=40535.

UNESCO (2012): UNESCO Guidelines for the Recognition, Validation and Accreditation of the Outcomes of Non-formal and Informal Learning. Hamburg: UNESCO Institute for Lifelong Learning. URL: http://unesdoc.unesco.org/images/0021/002163/216360e.pdf.

World Bank (2008): Skill Development in India: The Vocational Education and Training System. Discussion Paper Series, No. 22. Washington: World Bank.

World Bank (2013): Population Ages 15-64 (% of Total). URL: http://data.worldbank.org/indicator/SP.POP.1564.TO.ZS/countries.

Primary and Upper Primary (1-8) Education: Initiative for the World of Work at the Primary and Upper Primary Education in India

S. Nayana Tara and N.S. Sanath Kumar

1   Preamble

It is well established that improvements in education are associated with long-term improvements in economic performance. There are three broad theories about how education influences economic performance according to David Earle (2010):

- The basic *human capital* approach is that education improves the overall skills and abilities of the workforce, leading to greater productivity and improved ability to use existing technology, and thus contributing to economic growth.
- The *innovation approach* links education to improving the capacity of the economy to develop of new ideas and technologies.
- An extension of this is the *knowledge transfer* approach, which sees education as a means of spreading the knowledge needed to apply new ideas and make use of new technologies.

However, there is an important question as to whether there is a causal link between education and economic performance, and if so, in what direction. It may be that the two are associated, but not causally linked. It also could be that better economic performance leads to an increase in educational participation and achievement. Or it could be that having more people with education leads to improved economic performance.

In general, education and economic performance are likely to be interlinked. Having a more educated workforce enables firms to take advantage of new economic opportunities, leading to improved performance. Also, economic growth can lead to greater national and personal wealth, which increases the resources available and opportunities for education.

Further, according to the author, economic analysis shows that on the whole, improvements in school-level education lead to improvements in economic performance, and more so than the other way around. Analyses using international

cognitive tests have shown that it is improvements in cognitive skills, rather than years of schooling, which have a strong influence on economic growth. The amount of schooling undertaken is not related to growth, unless it also results in improved cognitive skills. Therefore, the quality of education is very important. This is very true for a country like India too. Given this truism, it is indeed highly important to note that India has recognised the importance of education, and more critically, the need for primary education for all its children in the relevant age group. We will now look at a snap shot of development of elementary education over the decades.

2   Development of Primary Education in India

Universal and compulsory education for all children in the age group of 6-14 was a cherished dream of the new Government of the Republic of India. This is evident from the fact that it is incorporated as a directive principle as enshrined in Article 45 of the Constitution of India. In the recent past, the government has made primary education a Fundamental Right of every Indian citizen. However, the allocation for education has remained around 4% of GDP although the government has wanted to raise it to at least 6%.

The number of primary and upper primary schools in India since 1950-51, indicate a steady positive growth. As can be seen from the table, the number of primary schools increased from a modest 0.21 million in 1950-51 to nearly 0.75 million in 2010-11.

Year	Primary	Upper Primary
1950-51	209,671	13,596
1960-61	330,399	49,663
1970-71	408,378	90,621
1980-81	494,503	118,555
1990-91	560,935	151,456
2000-01	638,738	206,269
2010-11	748,500	447,600

Table 1: Growth of Recognised Primary and Upper Primary Schools in India (1950-1951 to 2010-2011). Source: MHRD (2014)

The upper primary schools too grew significantly over the years from 13,596 in 1950-51 to a whopping 0.45 million in 2010-11 indicating the serious strides taken by the government in development of primary education. The above data has been graphically presented in the figure below.

As per the Progress of Elementary Education in India Flash Statistics 2011-12, the Gross Enrolment Ratio at primary level has hovered between 115.31

and 118.62 between 2008-09 and 2010-11. The corresponding figures for upper primary level ranges between 73.74 and 81.15. Similarly the Net Enrolment Ratio (NER) at primary education level ranged between 98.5 and 99.89 between 2008-09 and 2010-11, while the NER at upper primary level ranged between 56.22 and 61.82 during the corresponding years (Mehta 2011).

The dropout rates at the primary level indicate a decline over the years. As can be seen from the figure below, the dropout rate declined from 9.11% during 2009-10 to 5.62% in 2012-13. While this appears to be a redeeming feature, it must be mentioned that there are regional variations in dropout rates which are determined by rural-urban differences, remote regions, distinct geographical terrains including hilly areas, tribal populations and a host of other factors. For instance, in the state of Karnataka, the official statistics reveal that during 2010 there were 110,000 dropout children in the seven Educationally Backward Districts within the state despite intensive efforts made by the Department of Education to bring out of school children back to school Sarva Shiksha Abhiyan (SSA) (n.d.).
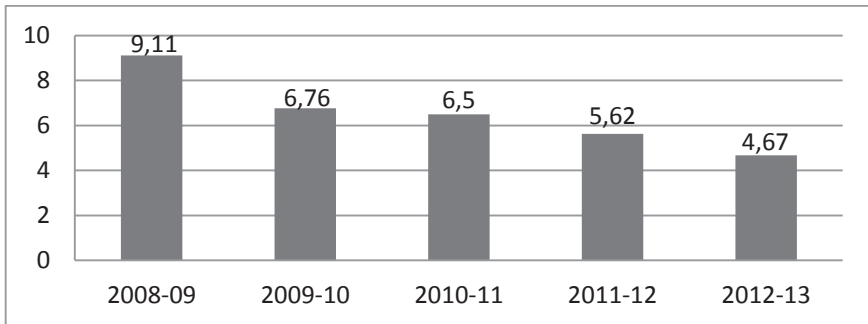
Figure 1: Average Dropout Rate at Primary Level. Source: NUEPA (2012) and NUEPA (2013)

In absolute terms, the Government of India has made huge financial investments in the education sector. In this regard, the government approved an outlay of Rs. 710 billion for its flagship elementary education programme, Sarva Shiksha Abhiyan (SSA) in the 11th Five Year Plan. Considering the increased requirements the implementation of the RTE Act would require, the government approved an outlay Rs. 231 billion for the combined RTE-SSA programme. This increased outlay was for a five-year period from 2010-11 to 2014-15, to be shared between the central government and the state governments on a 65:35 ratio. The Finance Ministry allotted Rs. 255.55 billion for the RTE-SSA programme for 2012-13 (MHRD 2011a). Despite such huge allocations, the share of education as percentage of GDP has remained very low.

It would be interesting to see a snapshot of the development of primary education in India. During pre-independent India, the scion of Indian politics, the revered Mahatma Gandhi had mooted the idea of providing all children with Basic Education, which holds a unique place in the history of elementary education in India. It was popularly known as Wardha Scheme, which would in essence, provide three R's in addition to teaching them a vocational skill, thereby inculcating dignity of labour among the children (KKHSOU 2011).

The scheme of basic education formulates the following proposals:

- Free, universal and compulsory education should be provided for all boys and girls between the ages of 7-14.
- This education should be imparted in the mother-tongue of the child.
- All education should centre round some basic craft chosen with due regard to the capacity of children and the needs of the locality. The committee suggested spinning and weaving, card-board and wood work, leather work, kitchen-gardening, agriculture and fishery as obviously suitable crafts.
- The selected craft should be both taught and practised so that the children are able to produce articles which can be used and may be sold to meet part of the expenditure on the school.
- This craft must not be taught mechanically but its social and scientific implications were to be studied side by side.
- In this craft-cantered education all the subjects to be taught were to be integrally related to the selected craft or the child's physical and social environment.

The concept of Basic Education as an educational theory and practice is unique and unquestionable. But its implementation is far from satisfactory. The Education Commission 1964-66, known as Kothari Commission fully recognised the importance of Basic Education and incorporated in its recommendations many of the fundamental features of basic education. Work experience, community living, social service, integration of academic knowledge with experience, Vocationalisation of Education, education for moral and spiritual values have been recommended by the Kothari Commission (NCERT 1970). The UNESCO Commission on Education in its report known as 'Learning to be' has adopted the term 'Basic Education' for primary education and emphasised that "education must cease being confined within school house walls, and many forms of social and economic activity must be used for educational purposes." (Faure et al. 1972)

National Policy on Education Committee of Members of Parliament was constituted by the Government of India in 1967 to consider some of the recommendations of the Kothari Commission. The relevant ones are reproduced below:

1. Work experience should be an integral part of general education at the school stage. Work with hands will help the young to develop insights into productive processes and use of science and inculcate in them respect for manual labour and habits of hard and responsible work.
2. There should be a broadly uniform educational structure in all parts of the country. The first step is to create the Ten Year School providing a common pattern of general education for all children. The national policy should be to ultimately make this period of ten years free and compulsory for all children.

The National Policy of 1968 marked a significant step in the history of education in post-Independence India. It aimed to promote national progress, a sense of common citizenship and culture, and to strengthen *national* integration. It laid stress on the need for a radical reconstruction of the education system, to improve its quality at all stages, and gave much greater attention to science and technology, the cultivation of moral values and a closer relation between education and the life of the people. This idea was taken forward by the 'Kothari Commission' (1964–66), which suggested introduction of 'work experience' in education. Subsequently, after the recommendations of 'Ishwarbhai Patel Committee' (July 1977), which first coined the term 'Socially Useful Productive Work' or SUPW, the subject was first introduced to the school curriculum in 1978, by Ministry of Education, Government of India (Naik 1997).

Perhaps the most notable development has been the acceptance of a common structure of education throughout the country and the introduction of the 10+2+3 system by most states. This system includes ten years of high school learning followed by two years of pre-university education and a further three years at degree level. In the school curricula, in addition to laying down a common scheme of studies for boys and girls, science and mathematics were incorporated as compulsory subjects and work experience assigned a place of importance.

Work experience, viewed as purposive and meaningful manual work, organised as an integral part of the learning process and resulting in either goods or services useful to the community, is considered as an essential component at all stages of education, to be provided through well-structured and graded programmes. It would comprise activities in accordance with the interests, abilities and needs of students, the level of skills and knowledge to be upgraded with the different stages of education. This experience would be helpful on their entry into

the workforce. Prevocational programme provided at the lower secondary stage was to also facilitate the choice of the vocational courses at the higher secondary stage (see chapter 3).

The evolution of elementary education system in India is interspersed with several new policy initiatives. A National Policy on Education addressing all levels of education took shape in 1986 and subsequently, the Programme of Action (POA) for the Policy was brought out in 1992. The National Policy on Education, 1986 and the POA 1992 envisaged free and compulsory education of satisfactory quality for all children below 14 years (MHRD 1986). There are mainly three streams in school education in India. Two of these are coordinated at the national level, of which one is under the Central Board of Secondary Education (CBSE) and was originally meant for children of central government employees who are periodically transferred and may have to move to any place in the country. A number of 'central schools' (named Kendriya Vidyalayas) have been established for the purpose in all main urban areas in the country, and they follow a common schedule so that a student going from one school to another on a particular day will hardly see any difference in what is being taught (Siqueira 2015). Kendriya Vidyalayas admit other children also if seats are available. All of them follow textbooks written and published by the National Council for Educational Research and Training (NCERT). In addition to these government-run schools, a number of private schools in the country follow the CBSE syllabus though they may use different text books and follow different teaching schedules. They have a certain amount of freedom in what they teach in lower classes.

At the national level, the NCERT plays a key role in developing policies and programmes, and also responsible for developing a National Curriculum Framework. Each state has its counterpart called the State Council for Educational Research and Training (SCERT). These are the bodies that essentially propose educational strategies, curricula, pedagogical schemes and evaluation methodologies to the state department of education. The SCERTs generally follow guidelines established by the NCERT. But the states have considerable freedom in implementing the education system (NCERT 2011).

The second central scheme is the Indian Certificate of Secondary Education (ICSE). Both the CBSE and the ICSE councils conduct their own examinations in schools across the country that are affiliated to them at the end of ten years of schooling (after high school) and again at the end of twelve years (after higher secondary). Besides these, there are purely State Government-run schools, Government-aided schools and purely Private Schools which are all affiliated to the State Education Department.

To give fillip to the constitutional obligation of providing free and compulsory elementary education for all children in the age group of 6-14 years, and

for purposes of equity and quality, as well as an outcome of the World Conference on Education For All by all countries in Bangkok in 1990, wherein the Heads of States affirmed this provision, Education For All (EFA), came into effect in 1994 (UNESCO 1990).

In the Indian context EFA would imply:

1. Expansion of early childhood care and development activities including family and communities, especially for poor, disadvantaged and children.
2. Universal Elementary Education (UEE), viewed as a composite programme of access to elementary education for all children up to 14 years of age; universal participation till they complete the elementary stage through formal or non-formal education programme; and universal achievement of at least the minimum levels of learning.
3. Drastic reduction in illiteracy, particularly in the age group of 15-35, bringing the literacy level in this age group at least to 80% in each gender and for every identified disadvantaged group, ensuring that the levels of three R's are relevant to the living and working conditions of the people.
4. Provision of opportunities to maintain, use and upgrade their education, and provision for the facilities for developments of skills, to all persons who are functionally literate and those who have received primary education through the formal and non-formal channels.
5. Creation of necessary structure and setting in motion processes which would empower and make education an instrument of women's equality.
6. Improving the content and process of education, people's culture and their living and working conditions, thereby enhancing their ability to learn and cope with problems of livelihood and environment (Shirname 2007).

The Centrally-Sponsored Scheme of District Primary Education Programme (DPEP) was launched in 1994 as a major initiative to revitalise the primary education system and to achieve the objective of universalization of primary education. Under the programme parameters, investment per district was limited to Rs. 0.40 billion over a project period of five to seven years. There was a ceiling of 33.3% on civil works component and 6% on management cost. The remaining amount was required to be spent on quality improvement activities. DPEP was an externally aided project. 85% of the project cost is met by the Central Government and the remaining 15% was shared by the concerned State Government. The Central Government share was resourced through external assistance.

Currently, SSA is implemented as India's main programme for universalizing elementary education. Its overall goals include universal access and retention, bridging of gender and social category gaps in education and enhancement of learning levels of children. SSA provides for a variety of interventions, including *inter alia*, opening of new schools and alternate schooling facilities, construction of schools and additional provisioning for teachers, periodic teacher training and academic resource support, textbooks and support for learning achievement. These provisions need to be aligned with the legally mandated norms and standards and free entitlements mandated by the RTE Act in 2011 (MHRD 2011b).

The RTE Act makes education a Fundamental Right of every child between the ages of six and 14 and specifies minimum norms in elementary schools. It requires all private schools to reserve 25% of seats to children (to be reimbursed by the state as part of the public-private partnership plan). Kids are admitted in to private schools based on caste based reservations. It also prohibits all unrecognised schools from practice, and makes provisions for no donation or capitation fees and no interview of the child or parent for admission. The act also provides that no child shall be held back, expelled, or required to pass a board examination until the completion of elementary education. It provides for children's right to an education of equitable quality, based on principles of equity and non-discrimination. Most importantly, it provides for children's right to an education that is free from fear, stress and anxiety.

3   Prevocational Education

Skill development initiatives at the primary and upper primary level in India are yet to fully take off in an organised manner (see chapter 3). As mentioned elsewhere, the importance of providing basic education along with introducing the child to vocational skill was recognised during pre-independent India, mooted by the Father of the Nation Mahatma Gandhi and holds a unique place in the history of elementary education in India. The Wardha Commission of 1937 gave a concrete shape to this scheme, which would in essence provide three R's in addition to teaching them a vocational skill, thereby inculcating dignity of labour among the children. National Policy on Education Committee of Members of Parliament was constituted by the Government of India is 1967 which, *inter alia*, mentioned that work experience should be an integral part of general education at the school stage. This thought was clearly enunciated by Gandhiji's pedagogy of *Nai Talim* (the new exercise) as long back as 1937 thus,

> *"Traditional and colonial forms of education had emphasized literacy and abstract, text-based knowledge which had been the domain of the upper castes. Gandhi's proposal to*

> *make handicrafts the centre of his pedagogy had as its aim to bring about a 'radical re-structuring of the sociology of school knowledge in India' in which the 'literacies' of the lower castes—'such as spinning, weaving, leatherwork, pottery, metal-work, basket-making and book-binding' - would be made central." (Sykes 1988)*

Work with hands will help the young to develop insights into productive processes and use of science and inculcate in them respect for manual labour and habits of hard and responsible work. Despite adhering to the avowed philosophy of dignity of labour as well as the importance of work experience at the primary educational level, no significant strides were made to carry forward this initiative in the later years.

Interestingly, Gandhiji's vision of basic education was not accepted as the post-independent Indian Government's vision of Nehru, of an industrialized, centrally planned economy had no place for 'basic education' or self-supported schools, rather it reflected the "vision of a powerful and growing class of industrialists, their supporters in politics and intellectuals with high qualifications in different areas, including science and technology." (Kumar 1993) Finally,

> *"The implementation of Gandhi's plan could not survive the 'development decade' of the 1960s when the Indian economy and its politics entered into a new phase featuring the penetration of Indian agriculture by the advanced economies of the West and the centralization of power." (Kumar 1993)*

Kothari Commission Report suggested to relate education to work and recommended vocational education for both lower and higher secondary stage.

> *"We visualize the future trend of school education to be towards a fruitful mingling of general and vocational education containing some elements of prevocational, technical education and vocational education, in its turn, having all elements of general education. In the kind of society in which we will be living increasingly in the coming years a complete separation between the two will be not only undesirable but impossible." (Aggarwal 1993)*

Though significant steps were taken through several initiatives in the area of primary education including Operation Black Board, DPEP etc., no efforts were made to mount a well-planned scheme of prevocational educational component at the primary and upper primary level.

The exception in this regard is the programme of Kasthurba Gandhi Balika Vidyalaya (KGBV) a scheme introduced under the SSA. The KGBV was introduced by the Government of India in August 2004, and then integrated in the SSA programme, to provide educational facilities for girls belonging to Scheduled Castes (SC), Scheduled Tribes, Other Backward Classes (OBC), minority communities and families below the poverty line in Educationally Backward Blocks. Among these blocks, schools may be set up in areas with:

- concentration of tribal population, with low female literacy and/or a large number of girls out of school; concentration of SC, OBC and minority populations, with low female literacy and/or a large number of girls out of school;
- areas with low female literacy; or
- areas with a large number of small, scattered habitations that do not qualify for a school

A total of 2,573 KGBVs have been sanctioned so far across the country. A very small financial allocation is made for vocational education under KBGV to the tune of a mere Rs. 50,000 for a school of 100 girls and Rs. 30,000 per school with less than 100 girls (MHRD 2007).

Nevertheless, the need for prevocational education at the secondary educational level has gained considerable attention. In pursuance of the provisions in the National Policy of Education 1986 and recommendations of various committees, the CBSE has made provision of Pre-Vocational Education in its scheme of studies with effect from the academic session 1995-96 of class IX (CBSE 2002).

The objectives of Pre-Vocational Education are:

- To impart training in simple marketable skills to students in classes IX & X.
- To develop vocational interests and aptitudes in enhancing productivity and to allow for self-exploration of vocational preferences.
- To facilitate the students in making choice of vocational courses at the higher secondary level.
- To prepare students for participation in work-experience as a desired dimension of academic education and
- To inculcate healthy values related to work culture.

The main features of the scheme of Pre-Vocational Education are as follows:

1. Pre-Vocational Education may be offered in lieu of Work Experience.
2. Minimum six periods per week will be allotted for Pre-Vocational Education.
3. Pre-Vocational Education will be introduced only in the schools where vocational course at pre-university stage are being offered and the regular infrastructure facilities are available for the chosen course.
4. After completion of Pre-Vocational at lower secondary stage the pass outs should attain marketable skills in the course concerned.

5. Pre-Vocational Education is being offered only in selected schools on an experimental basis. Hence prior approval from the board is essential before starting a Pre-Vocational Course.

6. The scheme of assessment is similar to that of Work Experience. The evaluation in classes IX and X will be done by the schools. However the grades awarded by the schools in class X will be reflected in the Board's Certificates with the title of the course concerned. The National Capital Territory of Delhi and Chandigarh Administration have expressed their willingness to introduce the following Pre-Vocational Trades in some of their selected schools form the academic session 1995-96. The major courses introduced in these schools include the following:

- Basic Office Procedures
- Basic Computer Practices
- Basic Accountancy Procedures
- Fruit & Vegetable Preservation
- Basic Bakery
- Basic Confectionery
- Basic Electronics
- Air-conditioning & Refrigeration
- Repair of Electrical Domestic Appliances
- Textile Printing Technology
- Textile Silk Screen Printing Technology
- Cutting & Tailoring
- Skin Care & Beauty Culture
- Automobile
- Food Preparation & Services

4   Conclusions

The coverage of Vocational Education in India remains extremely small (Gross Enrolment Rate at secondary level is only 57%), and only 3% of secondary school children are enrolled in the vocational stream. Despite the fact that the 11th Five Year Plan spoke about doubling the number of schools offering Vocational Education, there has been almost no change in the ground situation in this regard. In addition, serious question marks remain over its quality and its relevance for equipping school-children for the world of work. Yet, the fact that nearly 10,000 secondary schools offer the vocational streams, and have the infrastructure in place spread throughout the country, they must be used effectively to spread the skill base of workers in the unorganised sector.

The industrial and labour market trends clearly indicate the necessity of strengthening of vocational education in India. The introduction of vocational education at secondary level through bivalent schools and Sector Skill Council (SSC) will enable us to broaden the vocational education base at secondary level of education.

A clear pathway for vocational students to enter higher education streams is the way to move forward. Framing of vocational qualification framework, introduction of vocational degrees and setting up of a Vocational University with polytechnics, community colleges, Community Polytechnics and other Vocational Education Programmes in affiliated colleges are some of the recommendations which require further deliberation.

The poignant goal of the present government, 'Make in India' which includes major new initiatives designed to facilitate investment, foster innovation, protect intellectual property, and build best-in-class manufacturing infrastructure (GoI 2015) further necessitates the revamping of the educational system through institutionalizing professionally planned skill development education programmes at the primary and upper primary level itself. Further parallel activities and campaigns of environment building including awareness programmes through intensive use of media, coupled with cultural activities such as street plays, skits needs to be organised on a priority basis. Overarching these efforts will invariably be a clear focus on ensuring quality in planning and implementation along with a robust monitoring of tasks taken on hand.

The major weakness of the present education system is the dysfunctional linkage between education and the world of work. It must be mentioned that preparation for the world of work must begin at an early stage of child's educational journey. The preparatory knowledge acquired at this stage would be the stepping stone for gaining advanced skill education at secondary and higher levels. It is a paradox that acquisition of skill at the primary and upper primary levels, which

was propounded as a a an important part of the educational policy through such efforts as Wardha Commission, promotion of Gandhiji's pedagogy of Nai Talim, among others, the deluge of the Western educational philosophy and the priority placed on rapid industrialization as the avowed need of the hour struck a major blow to prevocational education in India and its impact is felt even today. So much so, the realization of the need for skill development is yet to take shape among planners and administrators of educational programme.

It is clear that the extent of priority given to skill development at primary and upper primary level is quite poor. The priority and focus so far is more on development of formal education system while prevocational education has not received its due attention. This is also evident by the fact that there has been significant dependence on multi-donor agencies such as World Bank, for raising resources to support formal primary and secondary education. This lopsided priority on formal education has resulted in poor financial allocations for development of prevocational education at the primary educational level. This is also borne out by the fact that prevocational education at the primary education level has not received its due recognition in the Five Year Plans though a good deal of attention is given to skill development at the secondary and higher education levels. Thus, dependence on only the formal education route puts undue pressure among the student community to aspire for higher education. It is thus imperative that a well-thought out strategy needs to be evolved to identify various aptitudes among students at the primary and upper primary education levels and stream them into appropriate vocational realms. Towards this end, there is a felt need for bringing awareness among parents, teachers and other stakeholders along with the community at large to sensitize the need for exposure of students to learning vocational skills at the primary level. In this regard, effective use of all media and social media networks needs no overemphasis. A critical aspect in this regard the urgent need for identifying, recruiting and training appropriate levels of teachers and instructors. Needless to mention, ultimately without a well-orchestrated effort including all the above aspects, one cannot aspire to build a professionally skilled work force. Perhaps the thoughts of Gandhiji on the philosophy of education is best borne by his following saying,

> *"By education I mean an all-round drawing out of the best in child and man-body, mind and spirit. Literacy is not the end of education nor even the beginning. It is only one of the means by which man and woman can be educated. Literacy in itself is no education. I would therefore begin the child's education by teaching it a useful handicraft and enabling it to produce from the moment it begins its training." (Gandhi 1937)*

References

Aggarwal, J. C. (1993): Landmarks in the history of modern Indian education. New Delhi: Vikas Publishing House Pvt. Ltd.

Central Board of Secondary Education (CBSE) (2002): Prevocational Education. URL: http://cbse.nic.in/curric~1/vocational02.pdf.

Earle, D. (2010): How can tertiary education deliver better value to the economy? In: The High Cost of Low Educational Performance. OECD. URL: http://www.educationcounts.govt.nz/publications/80898/how-can-tertiary-education-deliver-better-value-to-the-economy/what-is-the-link-between-education-and-economic-performance.

Faure, E. et al. (2013): Learning to Be - The World of Education Today and Tomorrow. UNESCO. URL: http://unesdoc.unesco.org/images/0000/000018/001801e.pdf.

Gandhi, M K (1937): Harijan.

Government of India (GoI) (2015): Make in India. URL: www.makeinindia.gov.in.

Krishna Kanta Handiqui State Open University (KKHSOU) (2011): Introduction to Wardha Scheme of Basic Education 1937. URL: www.kkhsou.in/main/education/wardha.html.

Kumar, K. (1993): Mohandas Karamchand Gandhi (1869-1948). Oficina Internacional de Educación. UNESCO París: Vol. XXIII, pp. 3-4.

Mehta, A. C. (2011): Elementary Education in India: Progress towards UEE, Analytical Report, National University of Educational Planning and Administration & Department of Elementary Education and Literacy, MHRD, New Delhi.

MHRD (1986): National Policy on Education 1986. Ministry of Human Resource Development, Government of India. New Delhi.

MHRD (2007): Final Report, National Evaluation, Kasturba Gandhi Balika Vidhyalaya (KGBV), Sarva Shiksha Abhiyan. Ministry of Human Resource Development, Government of India. New Delhi.

MHRD (2011a): Sub-group Report for the 12th Plan on Elementary Education. URL: http://www.educationforallinindia.com/12th_Plan_Consolidated_03.11.2011%20BOOKEMARKED.pdf.

MHRD (2011b): Sarva Shiksha Abhiyan - Framework for Implementation Based on the Right of Children to Free and Compulsory Education Act, 2009. Department of School Education and Literacy 2011. URL: http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/SSA-Framework.pdf.

MHRD (2014): Growth of Recognised Primary and Upper Primary Schools in India (1950-1951 to 2010-2011). Educational Statistics at a Glance. Government of India. URL: http://mhrd.gov.in/sites/upload_files/mhrd/files/statistics/EAG2014.pdf.

Naik, J. P. (1997): The Education Commission and After. New Delhi: APH Publishing Corporation.

National Council of Educational Research and Training (NCERT) (1970): Indian Education Commission, 1964-66. Ministry of Human Resource Development, Government of India. URL: http://www.teindia.nic.in/files/reports/ccr/KC/KC_V1.pdf.

National Council of Educational Research and Training (NCERT) (2011): Leading the Change. 50 Years of NCERT. New Delhi.

National University of Educational Planning and Administration (NUEPA) (2012): Progress towards UEE, Flash Statistics 2010-11. District Information System for Education. New Delhi.

NUEPA (2013): Progress towards UEE, Flash Statistics 2012-13. District Information System for Education. New Delhi.

Sarva Shiksha Abhiyan (SSA) (n.d.): Intervention - Out of School Children. SSA Karnataka. URL: http://ssakarnataka.gov.in/html/int_oosc.html.

Shirname, Sangeeta (2007): EFA in the Indian Context. Society for Education and Development (INSEED). Ministry of Human Resource Development, Government of India. New Delhi. URL: http://dise.in/Downloads/Use%20of%20Dise%20Data/Sangeeta%20Shirname.pdf.

Siqueira, T. N. (2015): Education in India. Srikanth.

Sykes, M. (1988): The Story of Nai Talim – Fifty years of Education at Sevagrram India (1937-1987). URL: http://home.iitk.ac.in/~amman/soc748/sykes_story_of_nai_talim.html.

UNESCO (1990): The Inter-Agency Commission (UNDO, UNESCO, UNICEF, WORLD BANK) for the World Conference on Education for All: Meeting Basic Learning Needs: A Vision for the 1990s. UNICEF House Three United Nations Plaza, New York.

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

Vishal Gupta, Charanya Raman and Balasundaram Krisanthan

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

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 12th 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 10th (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 66th 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 12th 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 10th
Human Resource Development	Polytechnics + Institutions for diploma in pharmacy, hotel management, architecture	Students having passed 10th
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)	5th, 7th, 8th & 10th pass
Ministry of Labour(DGET)	Craftsmen Training Scheme	8th, 10th, 12th pass
Ministry of Labour(DGET)	Apprenticeship Training Scheme	8th, 10th,12th 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'.
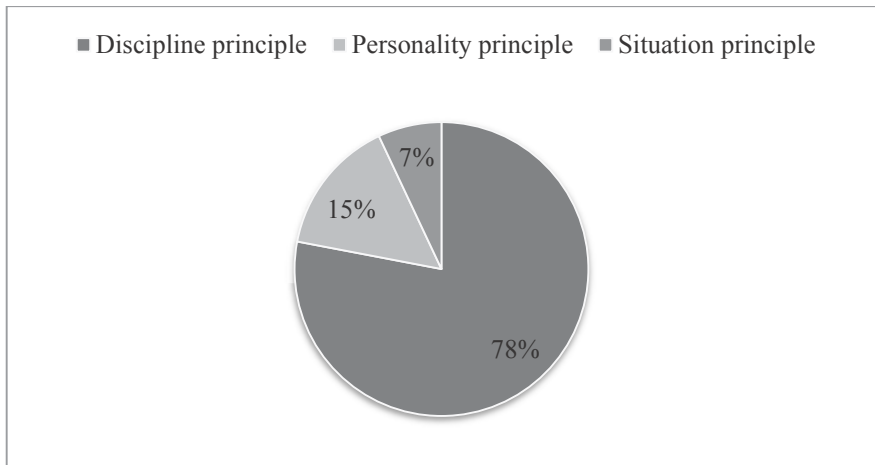
Figure 1: Aggregation of the findings in both curricula. Source: Krisanthan (2013)

8.2.2   Findings from the Teacher Interviews

Tamil Nadu is India's southernmost state and was identified for the sample be-
cause 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 busi-
ness 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.

References

Agarwal, T. (2013): Vocational Education and Training Programmes (VET): An Asian perspective. In: Asia-Pacific Journal of Cooperative Education. Vol. 14, No. 1, pp. 15-26.

Appleby, R. C. (1994): Modern Business Administration. London: Pitman Publishing.

Betz, J. (2007): Land und Bevölkerung. In: Informationen zur politischen Bildung. No. 3, pp. 4-5.

Bloomer, M. (1997): Curriculum Making in Post-16 Education: The Social Conditions of Studentship. London, New York: Routledge.

CBSE (2011): Secondary School Curriculum 2013. Volume 1 Main Subjects. Delhi: CBSE. URL: http://cbse.nic.in/currisyllabus/SECONDARY%20CURRICULUM-vol-1-2013.pdf.

CBSE (2013): Teacher Qualification URL: http://cbseacademic.in/web_material/Circulars/2013/7 Vocational/Teacher%E2%80%99s%20Qualification.pdf.

CBSE (2014): Curriculum and Syllabus 2014-15. URL: http://49.50.126.244/curriculum.html.

Cheney, G. R., Ruzzi, B. B. and Muralidharan, K. (2005): A Profile of the Indian Education System. In: Prepared for the New Commission on the Skills of the American Workforce.

Coffey, A. J. and Atkinson, P. A. (1996): Making Sense of Qualitative Data. Thousand Oaks: Sage.

CISCE (2013): ICSE Class X Syllabus. URL: http://www.cisce.org/icse X Syllabus.aspx.

DGET (2014): Schemes / Programmes-Trade Syllabus. URL: http://dget.nic.in/content/innerpage/trade-syllabus.php.

Edwards, R., Miller, K. and Priestley, M. (2009): Curriculum-making in School and College: The Case of Hospitality. In: The Curriculum Journal. Vol. 20, No. 1, pp. 27-42.

FICCI (2010): The Skill Development Landscape in India and Implementing Quality Skills Training. URL: www.ficci.com/SPdocument/20073/IMaCS.pdf.

Fullan, M. and Pompfret, A. (1977): Research on Curriculum and Instruction Implementation. In: Review of Educational Research. Vol. 47, No. 1, pp. 335-397.

Goel, V. P. (2009): Technical and Vocational Education and Training (TVET) System in India for Sustainable Development. In: Ministry of Human Resource Development Report. URL: http://www.unevoc.unesco.org/up/India Country Paper.pdf.

Government of India (2013): Status of Education and Vocational Training in India, NSS 66th Round. National Sample Survey Office.

Government of India (2014a): Annual Report 2013-14. Ministry of Labour and Employment.

Government of India (2014b): India Budget 2013-14. URL: http://www.indiabudget.nic.in/budget2013-2014/ub2013-14/eb/sbe59.pdf.

Government of India (2014c): India Budget 2013-14. URL: http://www.indiabudget.nic.in/budget2013-2014/ub2013-14/eb/sbe62.pdf.

Hempstead, C. and Worthington, W. (2004): Encyclopaedia of 20th-Century Technology. New York: Routledge.

Kelly, A. V. (2009): The Curriculum: Theory and Practice (Sixth Edition). London: Sage.

Kirk, D. and Macdonald, D. (2001): Teacher Voice and Ownership of Curriculum Change. In: Journal of Curriculum Studies. Vol. 33, No. 5, pp. 551-567.

Krisanthan, B. (2013): Vorberufliche Bildung in Indien. Eine Analyse ihrer curricularen Ausgestaltung. Wiesbaden: Springer.

Kumar, K. (2009): Report of Sub-Committee on Vision for Vocational Education. New Delhi: Planning Commission.

Majumdar, S. (2008): Workforce Development in India: Policies and Practices. Tokyo: Asian Development Bank Institute.

Mankiw, N. G. (2001): Principles of Economics. Fort Worth, London: Harcourt College Publishers.

MHRD (2014a): National Vocational Education Qualifications Framework (NVEQF) – Executive Order. URL: http://mhrd.gov.in/sites/upload_files/mhrd/files/executive-order.pdf.

MHRD (2014b): The Overview of Vocational Education. New Delhi: Ministry of Human Resource Development. URL: http://mhrd.gov.in/vocational-education-overview.

MHRD (2014c): National Vocational Education Qualification Framework (NVEQF). New Delhi: Ministry of Human Resource Development. URL: http://mhrd.gov.in/nveqf.

NCTE (2014): Curriculum Framework on Teacher Education. URL: http://www.ncte-india.org/curriculumframework/curriculum.htm.

NSDC (2011): Human Resource and Skill Requirements in the Auto & Auto Components Industry: Study on Mapping of human Resource Skill Gaps in India till 2022. New Delhi: NSDC.

OECD (2002). Education at a Glance. OECD Indicators 2002. Paris: OECD Publishing.

OECD (2005): The Definition and Selection of Key Competencies. Executive Summary. URL: http://www.oecd.org/pisa/35070367.pdf.

Pillay, H. (2014): India's Vocational Education Capacity to Support the Anticipated Economic Growth. URL: http://eprints.qut.edu.au/72103/1/72103 PILLAY BHP Report Final Report.pdf.

Planning Commission (2008): Eleventh Five Year Plan (2008-2012). New Delhi: Planning Commission. Volume I.

Planning Commission (2013): Twelfth Five Year Plan (2012-2017). New Delhi: Planning Commission. Volume III.

Posner, G. J. (2004): Analyzing the Curriculum. McGraw-Hill: London.

Reetz, L. (1984): Wirtschaftsdidaktik: Eine Einführung in Theorie und Praxis wirtschaftsberuflicher Curriculumentwicklung und Unterrichtsgestaltung. Bad Heilbrunn: Klinkhardt.

Reetz, L. (2003): Prinzipien der Ermittlung, Auswahl und Begründung relevanter Lernziele und Inhalte. In: Kaiser, F.-J. and Kaminski, H. (Eds.): Wirtschaftsdidaktik. Bad Heilbrunn: Klinkhardt. Pp. 99-124.

Short, P. (2008): Technical and Vocational Education and Training in India-A Snap Shot of Today and Changes Underway for Tomorrow. URL: http://apskills.ilo.org/resources/tecchnical-and-vocational-education-training-in-india.

Snyder, J., Bolin F. and Zumwalt, K. (1992): Curriculum Implementation. In: Jackson, P. W. (Ed.): Handbook of Research on Curriculum. New York: Macmillan Publishing Company.

Thakore, D. (2010): India Awakes to Vocational Education. URL: http://educationworldonline.net/index.php/page-article-choice-more-id-2115.

World Bank (2008): Skill Development in India. Report No. 22. URL: http://datatopics.worldbank.org/hnp/files/edstats/INDwp08c.pdf.

World Bank (2009): Secondary Education in India: Universalizing Opportunity. New Delhi: Human Development Unit, South Asia Region.

Wucher, S. (2012): Vocational Education and Training in India. Term Paper. URL: http://www.awen.wiso.uni-erlangen.de/fach/leitfaden/files/Muster-Hausarbeit3.pdf.

ITIs / ITCs: Industrial Training Institutes / Industrial Training Centres

Kothandaraman Kumar

1   Introduction

This chapter will deal with the formal vocational training route to enter the world of work. In the last decade, there has been an increasing attention paid to skill building as a national priority in India, both in terms of providing employment opportunities to the young population, and to fully realise the demographic dividend for the country by supplying the high quality skills to manage the global shortage in skills. India is among the top countries where employers are facing difficulty in filling up job positions. The difficulty level was 48% in India in 2012 where as the global standard was 34% (FICCI 2012). Estimates by leading consulting firms indicate that there could be a shortfall of 350 million people by 2022 in 20 high growth sectors of the Indian economy (Sanghi et al. 2012). Also, the XII Five Year Plan document of the Government of India, quotes an estimate made in a study done by Boston Consulting Group in 2007 which indicates that by 2020, while India will have surplus of 56 million working people, the rest of the world will experience a shortage of 47 million working people (GoI 2013a). Filling the skill gaps in both the domestic and the global arena is crucial to sustain the economic growth and realise the demographic dividend.

Accordingly, an extensive programme of skill development has been launched by the Government of India, of which the vocational education delivered by Industrial Training Institutes (ITIs) is one part. Other efforts of significance such as introduction of vocational education in secondary schools, widening the reach of vocational training to the informal sectors and to the not easily accessible geographic regions, certifications of informally trained skilled workers through National Skills Qualification Framework (NSQF) have also been initiated with a view to broadly prepare individuals for the world of work through vocational training and education. This paper exclusively focuses on the ITIs as vehicles of vocational training in preparation for the world of work (see chapter 13).

In response to a request from the Government of India, the World Bank submitted a study report in January 2008 assessing the status of vocational education and training system in India and suggesting the way forward (World Bank

2008). Subsequently, the Government of India formulated a National Skills Development Policy (NSDP) in 2009 (GoI 2009), incorporating many of the suggestions contained in the World Bank Report. The XII Five Year Plan covering the years 2012-2017, formulated by the Government of India, carried forward many initiatives that were proposed in the NSDP and spelt out the priorities and programme (GoI 2012). The Ministry of Labour and Employment, the ministry responsible for the ITIs also publishes annual reports on its activities. This paper draws substantially from the contents of these documents to provide an overview of the vocational training in India delivered through ITIs.

2   The Role of Industrial Training Institutes in the Vocational Training System in India

The vocational training in India is formally delivered by the ITIs through the Craftsmen Training Scheme (CTS). Starting from the 1950s, these institutions have been mandated with the provision of training in crafts for young school leavers so that they could find gainful employment. Historically, the institutions funded and managed by the state governments were referred to as ITIs, and those institutions owned, financed and managed by private organisations or Non-Government Organisations (NGOs) were referred to as Industrial Training Centres (ITCs). This distinction between ITIs and ITCs, based on their ownership and funding, came into existence in the 1980s. However, all vocational training institutions are now referred to uniformly as ITIs, with the word 'Government' or 'Private' added to indicate whether the institute is government owned or private sector owned (GoI 2014). Hence, in this paper, the term ITIs will be used to refer to both the government owned and privately owned ITIs.

A student can pursue vocational education stream in the secondary school and directly enter a polytechnic for pursuing a diploma program. Or the student can go into one of the ITIs and get certified under the CTS. The students passing out of an ITI can enrol in an apprenticeship scheme conducted by an industry and acquire practical skills as craftsman. Or the student – the certified craftsman – could also acquire further skills at an Advanced Training Institute or Foreign Training Institute to become a technician. The other avenue for acquiring vocational skills is the skills training offered in the informal sector by multiple agencies (see chapter 12).

Starting with a modest number of 54 institutions in 1953, the number of ITIs has increased dramatically in the last few years, to 10,750 in 2014. There are 2,275 ITIs owned by the government and 8,475 privately owned ITIs in India as

of March 2014, as shown in Table 1. Together, these institutions carry a seating capacity of 1.523 million (GoI 2014).

		ITIs (Government)	ITIs (Private)*	Total
2007	Number	1,896	3,218	5,114
	Capacity (million)	0.400	0.342	0.742
2010	Number	2,133	5,906	8,039
	Capacity (million)	0.432	0.683	1.115
2011	Number	2,244	7,160	9,404
	Capacity (Million)	NA	NA	1.321
2014	Number	2,275	8,475	10,750
	Capacity (Million)	0.490	1.033	1.523
*Formerly known as ITCs				

Table 1: ITIs in India. Source: Compiled from GoI (2010), GoI (2012), GoI (2014)

The NSDP published in 2009 estimates that the total capacity of skill development programmes to be 3.1 million (GoI 2009), while the XII Five Year Plan (2012-2017) document estimates the annual training capacity to be 4.5 million (GoI 2013a). Both these estimates include the capacity available outside the ITIs. The NSDP estimates that 12.8 million people enter the labour market – the world of work – annually (GoI 2009). The XII Five Year Plan document states that out of the 420.59 million in the age group on 15-59 in work force in 2009-10, only 10% had received any form of vocational training, but a majority of them received non-formal vocational training (GoI 2013a). These statistics give an indication of the vast gap to be filled in preparing those who aspire to enter the world of work through formal vocational training and also highlight the significance of the role that ITIs could play in providing formal vocational training to such aspirants.

3   Delivery of Vocational Training at Industrial Training Institutes

The vocational training curriculum that forms the content of the CTS is a standardized curriculum, designed and prescribed by the National Council for Vocational Training (NCVT). The curriculum is implemented at each ITI under the supervision of the State Council for Vocational Training (SCVT). The ITIs provide training to school leavers in 133 different trades – 70 engineering and 63 non-engineering trades. The course duration varies from six months to three years, and provides entry to students with varying qualifications – from 8th, 10th and 12th grades – depending on the type of trade (GoI 2014).

There are national level institutions which help in the development of the curriculum through research, development of the pedagogy and course materials such as Central Staff Training and Research Institute (CSTARI) at Kolkata and

National Instructional Media Institute (NIMI) at Chennai. Trade Expert Committees constituted for each trade develop the curricula, which is examined and approved by the NCVT.

There are prescribed qualifications for teachers, either diploma holders or graduates with minimum experience. The teachers are recruited through a selection process at the State level. There are seven dedicated Central Training Institutes which train the craft instructors. The trainees are required to undergo the All India Trade Test and the successful candidates are awarded a National Trade Certificate by NCVT (World Bank 2008).

4   Funding of Vocational Training through Industrial Training Institutes

The ITIs in the Government sector are owned and managed by state governments. The trainees are not expected to financially contribute in any meaningful way. Private ITIs are self-funded entities. Such ITIs are affiliated to NCVT through the State Directorate of the State where they are located. ITIs can be started by well-established organisations that could bear the cost of land and other infrastructure. Once the infrastructure is in place, such organisation can apply for approval to run the ITI which is sanctioned after due diligence. Companies like sole propriety, private/public limited, registered under companies' act, societies and trusts registered as per act, and promoters of special Economic Zones (SEZs), etc. are also permitted to open ITIs (GoB 2013). One of the problems pointed out with respect to financing is that the ITIs spend almost 90% of the funds earmarked in salaries, and this leaves very little to support the maintenance and upgrading of facilities and other operational expenses (World Bank 2008).

5   Vocational Training at Industrial Training Institutes – Perspective of Students and Industry

The available evidence, though not very recent, seems to indicate that a majority of the ITI graduates find it difficult to secure immediate employment. Only 12% of the Government ITI graduates and 5% of the private ITI graduates become self-employed. Some proceed for higher education. In some cases, the vocational training may not be leading to the job profile that the trainees aspire. While the opportunity to work in industry as part of the apprentice training scheme is available to the trainees, that scheme does not assure them a job (World Bank 2008).

Vocational training is not valued highly in the society in India. Only those who do poorly in their 10th grade examinations are expected to enrol themselves

in vocational training. The general education is valued more by many students and parents. Vocational training is not seen as aspirational in Indian society, but general education is (World Bank 2008; Sanghi et al. 2012).

The employers think that the vocational training provided at ITIs is deficient in terms of providing practical skills to perform on the job. In addition, the employers also find that the ITI graduates lack team working and communication skills. The graduates are also not adequately prepared for self-employment since they are not trained as multi-skilled workers and get no exposure to commercial skills that are required to perform as business persons (World Bank 2008).

6   Improvement Program for Industrial Training Institutes through Public-Private Partnership

Recognising the enormous need for skill development in the coming years, the NSDP has drawn up ambitious targets for the expansion of the ITIs in India. Many initiatives have been taken on multiple fronts to strengthen the vocational training through ITI. These include the expansion of the network of ITIs, creation of Centres of Excellence, upgrading of a sizable number of ITIs and the introduction of a NSQF. A common feature across all these initiatives is the strong involvement of the private sector in the spirit of Public-Private Partnership (PPP).

Expansion of ITI network: The XII Five Year Plan, covering the period 2012-2017, has laid down targets to open 3,000 new ITIs in the PPP mode to extend the vocational training institutes into the hitherto neglected areas of the country during the plan period (GoI 2013a). These targets have been derived from the high level target of providing skills training to 500 million Indians by 2022 under the Prime Minister's National Skills Development Initiative. Thus, the ITIs are expected to play a central role in enabling youth to enter the world of work. A visible indicator of this shift is the rapid increase in the number of ITIs in the private category in comparison with just a marginal increase in the number of ITIs in the government category during 2007-2014 as seen from Table 1.

Creation of Centres of Excellence (CoE): Under the ambit of the NSDP, new initiatives are being taken to address the issue of enhancement of quality of vocational training delivered at ITIs. Realising the pressing need for strengthening the ITIs, the government launched a five year program in 2006-07 for upgrading of the ITIs to Centres of Excellence from its own resources and with support from the World Bank. Out of the 500 ITIs sought to be upgraded to Centres of Excellence under this programme, 100 were being supported directly from Government's resources, with the remaining 400 were being supported by resources from

the World Bank. The state governments have also been asked to contribute a portion of the cost under this plan (GoI 2014).

These Centres of Excellence have been mandated to offer multi-skilled courses wherein one year of broad based basic training (BBBT) is followed by six months of modular advanced training, mostly in the industry. This initiative is expected to better align the content of the vocational training with the needs of the industry and create multi-skilled craftsmen with better employability skills.

Upgradation of 1396 ITIs through PPP: Over the last decade, there has been a significant shift in the policy to dissociate funding from delivery and to seek financial support from diverse sources, particularly from the private sector. Accordingly, during the XI Plan period 2007-2012, 1,396 ITIs were targeted for support for upgrading in the PPP mode, with the central government providing an interest free loan of Rs. 25 million to each of the ITIs covered under this plan to upgrade the infrastructure (GoI 2012). 1,227 ITIs were actually provided assistance under the scheme (GoI 2014). All the ITIs covered under this plan are mandated to constitute an Institute Management Committee (IMC), structured as a society with the industry partner or its representative as the chairperson, and with representatives from industry, state government, ITIs and others as members. The interest free loan is actually advanced to the IMC (MoLE 2012). The IMC is envisaged to involve itself as a partner in all aspects of functioning of ITIs – by providing inputs towards assessing the training needs, curriculum development, training of the instructors, and in carrying out testing and assessment. The IMCs are also granted the required financial and academic autonomy to manage the functioning of the ITIs.

NSQF: The NSDP also envisaged a NSQF to provide a framework for facilitating the standardized development and certification of skills and ensure comparability with international standards (GoI 2009). Accordingly, the NSQF was introduced in December, 2013 (GoI 2013b).

NSQF, as the name implies, is a framework of qualifications organised across levels of learning outcomes, in terms of skills and knowledge (one to ten, ten being the highest and equivalent to Doctorate level). Qualifications are made up of occupational standards for specific areas of learning units, evolved in consultation with the Sector Skills Council (SSCs) of the concerned industry, thus ensuring the relevance of the qualifications to perform on the job. The framework also facilitates creation of equivalence across multiple qualifications in a transparent manner. More importantly, the NSQF seeks to help the learners with a lifelong learning trajectory by providing multiple pathways – both horizontally as well as vertically – for transition between vocational and general education streams as well as the job market. The NSQF also provides for recognition of prior learning, even if acquired through informal channels, through its focus on outcome based

specification of qualification levels. Above all, the NSQF also seeks to align the qualifications with international standards to facilitate the learners to be integrated with the global skill pool (GoI 2013b) (see chapter 13).

SSCs: Under the conventional system, the individual ITI has very little freedom and the market information needed to design and offer courses on its own. The curriculum historically has been focusing on imparting skills in specific trades and has not taken the broad based approach to prepare the trainees for the world of work. Also, in the absence of concrete information regarding the demands for skills in different sectors, the job outcomes for craftsmen left a lot to be desired. In order to overcome these lacunae and to better align the skill development initiatives with the needs of the industry, the NSDP envisaged the setting up of SSC which will provide inputs regarding the demand for skills and the content of training to be provided that is relevant to the sector (GoI 2009). The National Skills Development Corporation (NSDC) has been mandated to form the SSCs as PPP, bringing together all stakeholders such as the academia, the industry and the training institutes. The SSCs are expected to contribute in providing information regarding demands for the sector in qualitative and quantitative terms, specifying the level of skills and the relevant standards and qualifications, participating in the accreditation and certification process, and training the trainers. The SSCs are also expected to take the lead in establishing a sector specific Labour Management Information System (LMIS) to facilitate the planning and delivery of training in line with the gap between the demand and supply of skills within the sector (Sanghi et al. 2012). As per the information available in the NSDC website, 31 SSCs are already in operation as of December 2014 (NSDC 2013).

LMIS: One of the key initiatives under the NSDP will be the setting up of LMIS, again with the involvement of the SSCs, to generate and disseminate market information that would result in the narrowing of the gap between supply and demand and help all the stakeholders to plan their activities better (GoI 2009). With the setting up of the SSCs, this initiative is likely to gain momentum. Keeping in mind the need to improve the employability of the craftsmen, a module on Employability Skills, comprising English Language course, communication skills, quality tools, occupational safety and health and entrepreneurship, has been included as mandatory content in the curriculum of ITIs in August 2011 (GoI 2011). Comprehensive study material has been made available to the institutes by NIMI to deliver this module. The curriculum prescribes that the usage of the materials is mandatory. Additional materials are not available to teachers.

7   Improvement of Curriculum – The Illustrative Case of Entrepreneurship Education

As mentioned in the earlier sections, sufficient scope exists for the improvement of the courses taught at the ITIs and ITCs, as the findings of a recent research study of the Entrepreneurship Curriculum introduced in the ITIs and ITCs indicates (Hirsch 2014). On the basis of the curriculum for Employability Skills, the curricular implementation of Entrepreneurship Education within the vocational education in India was analysed.

For a broad understanding, Entrepreneurship Education supports the creation of craftsmen employability as well as one's own ability to start a business after vocational education (Stock 2014). Starting from an international point of view, a model of Entrepreneurship Education developed by the Education, Audiovisual and Culture Executive Agency (EURYDICE) forms the basis of the analysis. The model takes regard to the recommendation of the European parliament on key competences for lifelong learning and gives a good overview of the international understanding of Entrepreneurship Education. Therefore, it prescribes several outcomes of Entrepreneurship Education and divides them into entrepreneurial knowledge, skills and attitudes (EURYDICE 2012). Drawing from the results of the analysis carried out in the research study referred to above, this section seeks to clarify in detail to what extent these outcomes are taught within ITIs.

The analysis of the curriculum shows that learning contents were only partially and not sufficiently elaborated in the curriculum. Since they are not specified in terms of specific learning targets and are not continuously formulated at different levels of abstraction, learning contents are partially unclear, increasing the risk of misinterpretation. For this reason, the teaching materials for Employability Skills developed by NIMI are consulted for the analysis, but one has to bear in mind that not all contents of the curriculum are completely covered by the teaching materials. Therefore, detailed statements to all the contents of the curriculum are not available.

Furthermore, the analysis indicates that the main focus of the curriculum is on the *transfer of entrepreneurial knowledge*. It is mainly prescribed in the module 'Entrepreneurship'. Overall, nine out of 13 categories of entrepreneurial knowledge could be identified into the curriculum. Thus, the curriculum prescribes, for example, learning content concerning *knowledge of the world of work*. In detail, the various types of businesses in different trades are defined as learning objectives.

In addition, it should be taught *what it is to be an entrepreneur*. For this purpose, contents are prescribed in the curriculum, such as values, attitudes and

motives of entrepreneurs, characteristics of successful entrepreneurs and enterprises, the importance of skills and outcomes like identifying and developing entrepreneurial competence and networking. However, it is not clear whether these contents have to be taught theoretically by teachers or if trainees should acquire these during their vocational education. Nonetheless, the analysis of teaching materials suggests that teachers should only provide these contents theoretically.

The curriculum also prescribes that trainees have to plan their own career during their vocational education. The teaching materials also show that students have to read different job descriptions, have to learn how to write applications and set goals for their own career, based on the assessment of their own strengths and weaknesses. This approach could allow students *to define and prepare their own place in the world of work with a well-developed awareness of opportunities and constraints*. The curriculum takes this aim into account by additionally prescribing various acts and sources of assistance in central and state government organisations. Nonetheless, the development of this ability could be intensified if teachers and students also discussed advantages and disadvantages of the different types of work.

Concerning *the knowledge of concepts and processes that can be applied to entrepreneurship*, the curriculum includes the need and scope for self-employment. This is done with reference to financial support and other framework conditions which have to be taught by teachers. In addition, content affecting the *environment in which entrepreneurship is often applied* could also be identified in the curriculum. In detail, the curriculum prescribes contents like understanding the customer and the market as well as health and safety issues. But there are also topics included that relate to knowledge about *business organisations and processes*, such as knowledge of marketing, its methods and various aspects of quality and management systems.

Contents to reinforce the *awareness of ethical values* can also be identified in the curriculum. The teaching materials show that this will be addressed by topics like reliability, respect, responsibility, legal awareness, fairness, environmental protection and the right to vote.

The knowledge categories that could be identified in the curriculum are shown in the figure below. All points that lie on the scale point '1' contain learning contents to the respective categories of knowledge.
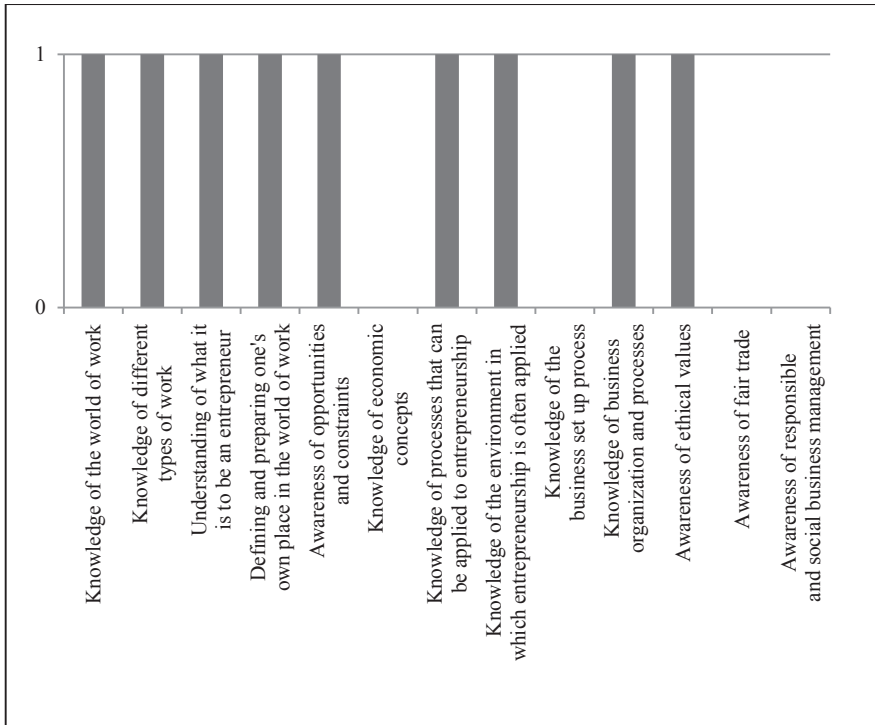
Figure 1: Knowledge categories identified in the curriculum. Source: Own illustration (based on GoI 2011)

Contents regarding attitudes and skills could be identified in a much smaller scale. Nevertheless, basic approaches of a broad understanding of Entrepreneurship Education can be found under the concept of Employability Skills. They are included to a large extent in the module 'Communication skills' and 'Entrepreneurship'. The following graphic shows the allocation of attitudes and skills for each module:
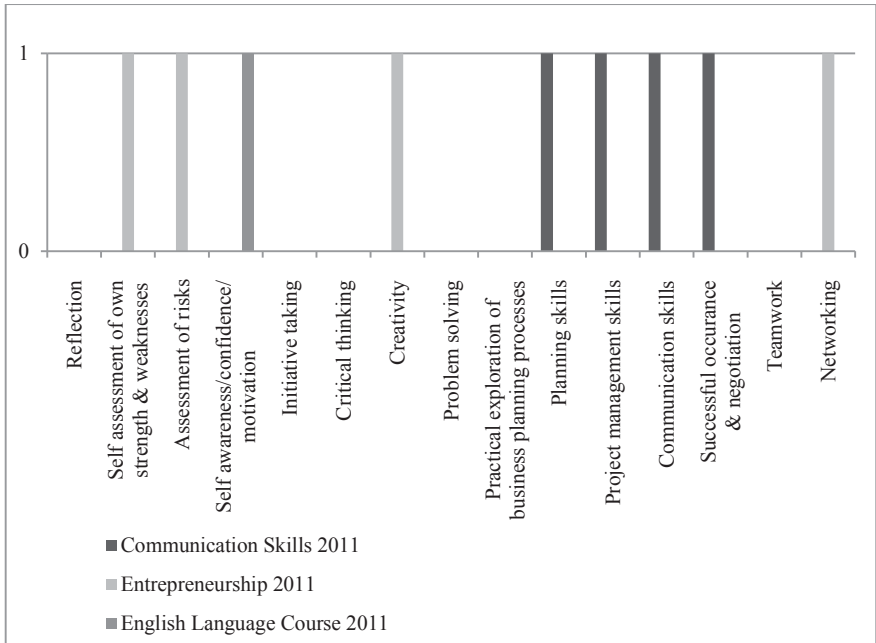
Figure 2: Skill and attitude categories identified in the curriculum. Source: Own illustration (based on GoI 2011)

Concerning *entrepreneurial attitudes,* four out of eight categories could be identified. Thus, in the module 'Entrepreneurship' is listed that the cause of failure and identification of entrepreneurship abilities have to be acquired through self-assessment and other techniques. This suggests that the *assessment of own strengths and weaknesses* is part of the curriculum.

With regard to the *assessment of risks,* the curriculum prescribes that students should learn how a SWOT analysis (Strength, Weaknesses, Opportunities and Threats) is carried out. For this purpose the teaching materials include an exercise where trainees have to assess entrepreneurial strengths and weaknesses, but an analysis of opportunities and risks is not contained.

It is also stated that 'Motivational Training' is intended to be a part of the curriculum which aims at increasing self-awareness and self-confidence. However, one cannot find information in the teaching materials on how self-confidence can be strengthened.

Furthermore, students should be encouraged to be *creative*. For that reason, the teaching materials include exercises in which students are asked to contribute their own ideas regarding the development of a specific product and to solve various problem situations.

Concerning *entrepreneurial skills,* five out of seven categories could be identified in the curriculum. Thus, the module 'Communication Skills' formulates 'Time Management' as one learning objective. The content is integrated to improve students' *planning skills*. This is done by teaching various tools to help students plan and organise their time effectively. Additionally, the teaching materials show that trainees learn to prioritize their own work, set goals and prepare to-do lists. *Project management skills* are also covered. Topics that apply project management skills are project design, feasibility and cost-effectiveness. The teaching materials also include an exercise in which students receive a draft outline of a project report that they should fill on their own.

The curriculum contains a lot of learning objectives in order to develop *communication skills*. Basic knowledge on communication as well as dealing with barriers of communication and conducting interviews should be taught. Since the curriculum also includes content of non-verbal communication such as etiquette and dress code it refers to the category *successful occurrence and negotiation,* too. For this purpose, a number of exercises are given in the teaching materials, which enable a practical application in different situations.

The module 'Entrepreneurship' additionally includes that students should develop the ability to network. However, there is no information in the teaching materials available that show how networking can be strengthened via teaching. It can only be derived from group work sessions that are implemented.

Unlike entrepreneurial knowledge, entrepreneurial attitudes and skills can only be acquired by actively doing. Therefore, the teacher has to create situations in which students can feel real experiences or can at least comprehend content intellectually. Action orientation is a key concept for that. For this purpose, *teaching methods* prescribed in the curriculum were analysed additionally.

The analysis indicates that guidelines concerning teaching methods are not well elaborated into the curriculum. Thus, teachers can only take few guidelines out of the curriculum for their teaching. Also the teaching materials do not contain detailed and sufficient exercises and recommendations for the instructional design of teaching. Therefore, teachers are expected to implement the curriculum to a large degree on their own. Nevertheless, some advices on how to use action methods are included in the curriculum. It is recommended that the module 'Communication Skills' , for example, should be delivered in a workshop mode, wherein every learner gets the opportunity to practice learning contents and get coaching to improve their communication skills. Furthermore, a suitable mix of

theoretical input including appropriate demonstrations and practical application is prescribed.

The module 'Entrepreneurship' does not elaborate in sufficient detail how the curriculum can be implemented in teaching. Teaching methods, such as interactive pedagogy, classroom instruction, audio-visual methods and role play are recommended. Since interactive pedagogy and classroom teaching could be comprehended very broadly, different interpretations are possible. There are no prescribed limits between the quantum of group work or discussions and classic frontal teaching with the usage of different questions in the dialogue between students and teachers. On the one hand it would give teachers a great level of freedom in the instructional design of their teaching, but on the other hand it would also lead to uncertainty and not so uniform inputs from teachers since explicit examples are not given.

8 Industrial Training Institutes – The Way Ahead

The vocational training in India is assuming a momentum and direction for the better. An ambitious target has been set for skilling 500 million people by the year 2022 under the National Skill Development Initiative (NSDI) and a NSDP has been articulated (Table 2). A three tier structure has been evolved for the governance of the Skill Development Initiative (Sanghi et al. 2012). The Prime Minister's National Council on Skill Development is the apex institution to provide policy direction. At the next tier, National Skill Development Coordination Board has been constituted to bring coherence in the activities of the different ministries involved in the skill development activities. At the next tier, the NSDC has been set up to develop action plans to promote skill development in the PPP mode (GoI 2009) (see chapter 7).

The ITIs are expected to play a very important part in this ambitious program. Several new initiatives have been introduced to rectify some of the deep rooted lacunae in the vocational education and training system. One of the differentiating aspects of the NSDP is that the world of work philosophy that has been implicitly assumed in detailing out the elements of the policy and the corresponding programs under the policy, many of which have been mentioned in the various sections of this paper. Involvement of the private sector as resource providers and stakeholders, transforming the vocational training from being supply driven to demand driven, decentralising the delivery to the institution level, creation of a qualification framework to ensure quality standards and to align the vocational training with general education are some of the defining features of the NSDP. The NSDP has also been embedded within the broader socio-economic objectives of realizing

the demographic dividend and bridging the skill gap estimated at the global level over the next decade or so. The Vocational Training institutions will be key players for realising the lofty goals set in the NSDI and a key instrument under the NSDP.

The mission of the NSDI will empower all individuals through improved skills, knowledge, nationality and internationally recognised qualifications to gain access to decent employment and ensure India's competitiveness in the global markets.

In 2009, Government of India formulated NSDP that laid the skill development framework for India. The policy aims to support achieving rapid and inclusive growth through:

1. Enhancing individuals' employability (wage/self-employment) and ability to adapt to changing technologies and labour market demands.
2. Improving productivity and living standards of the people.
3. Strengthening competitiveness of the country.
4. Attracting investment in skill development.

The objectives of National Policy on Skill Development are as below:

a. Create opportunities for all to acquire skills throughout life, and especially for youth, women and disadvantaged groups.
b. Promote commitment by all stakeholders to own skill development initiatives.
c. Develop a high-quality skilled workforce/entrepreneur relevant to current and emerging employment market needs.
d. Enable the establishment of flexible delivery mechanisms that respond to the characteristics of a wide range of needs of stakeholders.
e. Enable effective co-ordination between different ministries, the Centre and the States and public and private providers.

The scope of NSDP:

a. Institution- based skill development including ITIs/ITCs/vocational schools/technical schools/polytechnics/professional colleges, etc.
b. Learning initiatives of sectoral skill development organised by different ministries/departments.
c. Formal and informal apprenticeships and other types of training by enterprises
d. Training for self-employment/entrepreneurial development
e. Adult learning, retraining of retired or retiring employees and lifelong learning
f. Non-formal training including training by civil society organisations
g. E-learning, web—based learning and distance learning.

Figure 3: NSDP. Source: Extracted and adapted from GoI (2009)

Questions do remain. Comments have been expressed about the wisdom of the NSDI and NSDP considering the socio-cultural milieu and both the static and dynamic structural features of the economy (Sanghi et al. 2012; King 2012). The predominance of informal sector, a low status associated with vocational training,

and the challenges faced on the demand side in terms of access to finance, infrastructure and bureaucratic bottlenecks that make doing business difficult are all cited as sources of scepticism accompanying the NSDI. Notwithstanding the reasonableness or otherwise of such scepticism, the policy makers seem to believe that actions are warranted on many fronts to deal with all these issues, and feel determined to do what they can, while hoping for favourable outcomes to materialise. In that sense, the future of vocational training in India seems to hold a lot of promise.

Specifically, the ITIs are likely to experience a more favourable ecosystem to make their contributions count. They are also likely to benefit from the high priority and attention given at the policy level to the skills training. Internal efficiencies are likely to be realized through increased academic, functional and financial autonomy secured through mechanisms that are being put in place like the CoE, IMC and NSQF etc. While the real impact of these new measures may take some time to become visible, it is reasonable to surmise that a long term direction has emerged for the vocational training programs delivered by the ITIs in India. More importantly, at a philosophical level, the policy makers seem to have comprehended the role of ITIs in leading their students into the world of work which may augur well for the effectiveness of ITIs in the future.

References

EURYDICE (2012): Entrepreneurship Education at School in Europe – National Strategies, Curricula and Learning Outcomes. URL: http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/135EN.pdf.

FICCI (2012): Knowledge Paper on Skill Development in India: Learner First. FICCI-Ernest & Young. September 2012. URL: http://www.ey.com/Publication/vwLUAssets/FICCI_skill_report_2012_finalversion/$FILE/FICCI_skill_report_2012_finalversion_low_resolution.pdf.

Government of Bihar (GoB) (2012): Labour Resources Department, Procedure for Opening ITI. URL: labour.bih.nic.in/docs/procedure-for-opening-iti.pdf.

Government of India (2010): Mid Term Appraisal for Eleventh Five Year Plan 2007-2012. URL: http://planningcommission.gov.in/plans/mta/11th_mta/MTA.html.

Government of India. (2009): Ministry of Labour and Employment National Skill Development Policy. URL: http://www.skilldevelopment.gov.in/resources/national-skill-dev-policy.

Government of India (2011): Ministry of Labour and Employment, Syllabus for Employability Skills. URL: http://www.det.kerala.gov.in/docs/pdf/emp.pdf.

Government of India (2012): Ministry of Labour and Employment: Report of the Working Group on Skill Development and Training for XII Five Year Plan. URL: http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wg_skill_develop.pdf.

Government of India (2013a): Planning Commission, 12th Five Year Plan 2012-2017 – Social Sectors (Volume III). Sage Publications India Pvt. Ltd.

Government of India (2013b): Ministry of Finance, Notification No. 8/6/2013.

Government of India (2014): Ministry of Labour and Employment: Annual Report 2013-14.

Hirsch, C. (2014): Entrepreneurship Education innerhalb der beruflichen Bildung in Indien: Eine Ana-
    lyse von Industrial Training Institutes (ITIs) in Bangalore. Master thesis at University of Cologne.

King, K. (2012): The Cultural Challenge in India's Massive Skill Development Ambitions. Vikalpa.
    Vol. 37, No.3.

National Skill Development Corporation (NSDC) (2013): Our affiliates. URL:
    http://www.nsdcindia.org/our-affiliates-0.

Sanghi, S., Subbiah, MV, Reddy, RCM, Ganguly, S., Gupta, G.S., Unni, J., Sarkar, S., Sarin, A.,
    Chand, V.S. and Vasavada, M. (2012): Preparing Globally Competitive Skilled Workforce for
    Indian Economy: Emerging Trends and Challenges. Vikalpa. Vol. 37, No. 3, pp. 95-96.

Stock, M. (2014): Entrepreneurship Education im Spiegel der Zeit. In: Berufsbildung – Zeitschrift für
    Praxis und Theorie in Betrieb und Schule. Vol. 68, No. 147. Eusl-Verlagsgesellschaft mbH;
    Hekman, Björn; Lindner, Johannes. 2009. Entrepreneurship Education in der Berufsausbildung:
    Vom didaktischen Modell zur praktischen Umsetzung. URL:
    https://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=
    0CCEQFjAA&url=http%3A%2F%2Fwww.bibb.de%2Fveroeffentlichungen%2Fde%2Fpublica-
    tion%2Fdownload%2Fid%2F1642&ei=nhXO-
    VOqzOqKj7AbDr4GgAw&usg=AFQjCNFvqb05V8X_I19BZYfU5UkC7fus2g.

World Bank (2008): Skill Development in India- The Vocational Education and Training System. Hu-
    man Development Unit - South Asia Region. Report No. 22.

(Technical) Colleges: Technical Education in India – The Strengths and Challenges

Rengan Venkatram

1   Introduction

Any educational system promoting knowledge, skill and competency delivers many desirable outcomes. The best quality of education offered in any country creates a competitive edge over other countries. India, traditionally referred as a guild of possessing century old technical knowledge and skills like carpentry, smithy, foundry, weaving etc., has been also a forerunner in experimenting educational system to suit the modern industrial world. Thus, various educational reforms have been introduced, especially after the country gained independence in 1947. Such reforms are being attempted to bring few fundamental changes in education particularly on improving overall school enrolments thereby increasing literacy level of population[1] and very recently to create more technically qualified man power for nation building and overall socio-economic development. India, being the second most populous country and also one of the largest economies in the world, thus makes huge investments on education and to foster a rapid knowledge and skill based society. This vision also forms a part of overall human resource development and providing technical education (TE) through academic institutions is one among such steps.

Any business enterprise to grow and become competitive requires an updated technical knowledge and skill (Basant and Chandra 2007). The academic institutions provide the technical knowledge by training the youths and business enterprises recruit them and build on. The impact or any win-win situation between the educational institutions and industry interface would be defined only when such growth is felt at both levels. India is already on the trajectory of creating more and more academic institutions with the objective of creating facilities on par with any developed country and thus owns one of the largest higher education systems in the world.

---

1 The literacy of the population has increased from 18.33% in 1951 to 74.04% in 2011 (GoI 2014a). (The views expressed in this paper are those of the author and do not necessarily reflect those of the organisation where the author works.)

At the time of independence, the country had hardly 38 institutions offering various degree programs with a capacity of mere 2,500 students (Shivani and Khurana 2012; Kohli 2011). Since then, there is tremendous growth both in number of institutions and the intake of students. As per 2011 census, population in the age group between 15 and 24 years (youths) in India was 231 million, constituting about 19% of the total population (GoI 2014b). These huge young populations are the potential candidates who could be absorbed by the various institutions offering higher education in India and elsewhere. Besides, considering current demographic structure of India, where the majority of population is below the age of 25 years, higher educational institutions play a critical role. Moreover, with an increasing (20.4%) Gross Enrolment Ratio (GER)[2]of the youth population for higher education and with annual enrolment of more than 25 million (GoI 2013a), India is ranked as the third largest provider of higher education in the world next to US and China (Sharma 2012).

Thus, the current educational system and the facilities being created in the country are subject to many such challenges. However, the quality of such workforce and their preparedness from academics to world of work is more important than a mere number of educated youths or creation of educational institutions. On the other hand, it is also observed that the spending pattern on higher education is still under-utilised and the gap existed between allocated funds from government and expenditure made (Anjum and Tiwari 2012).

With the above observations, this paper focuses on the structure of higher educational system with special reference to technical education system in India, its strengths and the challenges faced by the institutions in providing such education. In the final section of this paper, the status of TE is more elaborated with some specific developments in the state of Tamil Nadu[3], a leading state with approximately 66% of the population in the working age group (Peoplestrong 2014). Tamil Nadu is one among the 29 states in India. The state occupies a land area of 4% of the country and holds 6% of the country's population. Tamil Nadu state is also one among the states with relatively higher trend in urbanization, as 48.45% of state population lives in major cities and towns as against 31.16% at All India level. The State has achieved a better literacy level[4]. Between the rural and urban literacy population in the state, there existed only marginal differences (87.24% in

---

2 GER in higher education is the total enrolment as a percentage of population in the eligible age cohort of 18-23 years (GoI 2013b).
3 In this article, very detailed analysis on the TE was done only with respect to Tamil Nadu state and the issues, related to TE, identified in this select state were observed to be similar in other states of India also.
4The overall literacy rate of the population (as per 2011 census) was 80.33% (74.04% - All India) and the male and female literacy rates were 86.81% (82.10% – All India) and 73.86% (65.40% - All India) respectively.

urban and 73.80% in rural) as against 84.98% in urban and 68.91% in rural at National level.

2   General Structure of Higher Educational and Technical Educational System in India

The current educational system in the country provides greater scope and also the facilities to undergo TE and skill development. A separate stream of vocational education beginning at school level is also present. Some flexibility in lateral and vertical movement of students from Vocational stream to TE is also seen.

      The general structure of the higher and technical educational system with the normal age of entry and leaving at each level that is from schooling to higher educational level including TE is shown in the Figure 1 (see chapter 1). At higher educational level, there are institutions offering both 'General' and 'Technical/Professional' education. Through the general education stream, the institutions offer various courses or degree programs in the field of study like arts, science, commerce and education. The technical or professional institutions offer programs relating to engineering, agriculture, veterinary, medical, law, agriculture, management, town planning etc. The opportunity for a student to undergo any type of TE begins at the age of 16 years, when the students select either polytechnics or other disciplines like engineering, management etc. A student can also enter a polytechnic college by passing out higher secondary schooling (12th standard) and undergoes the courses for two years. There is some flexibility in entering the polytechnic stream. The students passing out secondary schooling (10th standard) can also join polytechnic stream but has to undergo the course for three years. On completion of course in polytechnic, the student can continue their studies further, especially in engineering stream, as 'lateral entrant'. Such students join the Under Graduate (UG) degree program in engineering colleges in the 2nd year of the curriculum.

      In case of general school education stream, students after higher secondary level might prefer for TE. Normally the period of study, for instance in engineering, will be four years.

      One could also classify the higher educational system and the institutions offering such education based on the form of presence. Accordingly, the higher educational institutions can be classified into three categories namely universities, colleges and special institutions offering diploma courses. The universities offer UG and Post Graduate (PG) degree programs in general courses like arts and sciences and Professional or Technical courses like medical, engineering, law, man-

agement, agriculture and allied subjects. The second category of educational institutions is the 'college' offering courses in different fields of study and the third category are the institutions offering exclusively Diploma courses. Based on the funding and management also the higher educational institutions can be further classified into universities as Central Universities, Central and State Open Universities, Institution of National Importance, State Public and Private Universities and Government and Private Deemed Universities.

Similarly, there are both government and private funded colleges. A comparison on the growth of the higher educational institutions (coinciding with the beginning and ending of the 11th Five year plan period) based on the funding agencies was made and the details are presented in Table 1.

Institutions	Universities		Colleges		Diploma Institutions		Total	
	06-07	11-12	06-07	11-12	06-07	11-12	06-07	11-12
Central Government funded	-	152	58	69	-	-	145	221
% change 06-07 & 11-12	*-*	*74.71*	*-*	*18.97*	*-*	*-*	*-*	*52.41*
State Government funded	227	316	9000	13024	1867	3207	11094	16547
% change 06-07 & 11-12	*-*	*39.21*	*-*	*44.71*	*-*	*71.77*	*-*	*49.15*
Private funded	73	191	12112	19930	5960	9541	18145	29662
% change 06-07 & 11-12	*-*	*161.64*	*-*	*64.55*	*-*	*60.08*	*-*	*63.47*
Total	387	659	21170	33023	7827	12748	29384	46430
% change 06-07 & 11-12	*-*	*70.28*	*-*	*55.99*	*-*	*62.87*	*-*	*58.01*

Table 1: Growth of Higher Educational Institutions - All India. Source: GoI (2013b: 94)

At the end of the 11th Five-year plan period (2011-12), 659 Universities, 33,023 colleges and 12,748 diploma offering institutions were functioning across the country. The Universities and Colleges were being funded both by Central and State Governments. Besides, the private sector also funded all the three types of

institutions namely Universities, Colleges and Diploma course offering institutions. The table above also shows that the number of institutions had increased more than one-third in a span of just six years that is between 2006-07 and 2011-12. The break up on the number of higher educational institutions would indicate that among the three major funding sources, the private colleges and diploma offering institutions outnumbered the government funded colleges, although the funding responsibilities for establishment of new Universities always vested with government agencies. The share of private funded institutions had increased to about 64% between the two time periods. Thus private sector funding in higher education is becoming more popular and significant across the country (Mani and Arun 2012).

3   Technical Education and Capacity Expansion

The concept of imparting technical knowledge and skill in India has been an age old tradition and thus has a long history (Ahmed and Satija 2005). Imparting formal TE in India can be traced back to mid-19th century (Shivani and Khurana 2012). The industrial revolution in Western countries traversed subsequently to many colonel ruled countries including India. The situations thus demanded local trained technicians for managing small scale industrial units, creation of infrastructure like roads, water bodies including dams, running industrial units with agricultural produce as basic raw material etc. Thus, providing TE began in the form an informal training and then transferred from generation to generation, later shaped into academic-cum-training based institutions in the field of engineering, management, applied crafts etc.

TE in India now covers the various courses and programs in engineering, technology, management, architecture, town planning, pharmacy, applied arts and crafts, hotel management and catering technology (GoI 2011).

Over a period of time since independence, the technical education system in India has grown fairly larger in size with participations both from government and private agencies. Programs in different disciplines/trades are now offered with the award of simple certificate of participation to award of Diploma or UG and PG degree certificates. Based on the funding, the institutions providing such TE can be broadly classified into three categories namely Central Government funded institutions, State Government funded institutions and Self-financed institutions. Currently, there are about 16,500 institutions offering TE at Diploma, UG and PG levels (AICTE 2014). In Table 2 below, the details on number of the technical institutions and intake in a span of six years (2006-07 and 2013-14) are shown:

Levels	2006-2007			2013-14		
	Number of Institu-tions	Number of Student In-take	Intake per Institute	Number of Institutions	Number of Student In-take	Intake per Institute
UG	2,322	746,672	322	4,599	1,736,174	378
PG	5,735	388,071	68	7,929	560,226	71
Diploma	2,511	633,983	252	4,037	1,172,868	291
Total	10,568	1,768,726	167	16,565	3,469,268	209
% change in 2013-14 over 2006-2007				56.75	96.15	25.13

Table 2: Number of Technical Institutes and Student intake - All India. Source: AICTE (2014)

The TE is offered as degree courses and diploma courses. During the year 2006-07, there were 10,568 institutions offering various courses and programs in engineering, technology, management, architecture, town planning, pharmacy, and hotel management and catering technology. The student intake per year was about 1.76 million and about 167 students were admitted in each institute. The growth is found to be tremendous, as within a span of six years, the student intake increased to 3.47 million from 1.76 million through establishment of 16,565 institutions during 2013-14. The overall increase (percentage change) in number of institutions, student intake and intake per institute were 56.75%, 96.15% and 25.13% respectively (Table 2).

Thus, there has been a tremendous growth in establishment of technical institutions and student intake every year. This growth in number of technical institutions is also on par with the overall growth in the higher educational institutions per-se.

4   Enrolment – Discipline Wise

The growth in establishing institutions must be on par with increase in the enrolment. The data indicate that growth in establishment of higher education is also found to be consistent with the increase in enrolment over the years. The number of students enrolled in higher education had increased from 0.21 million in 1950-

51 to about 22 million in 2011-12 (CII 2013)[5], with the effect that the GER has also increased from 0.40% in 1950-51 to 19.4% in 2012-13 (Naik and Agnihotri 2013). Such enrolment however has not been uniform throughout the disciplines. In this section, a brief analysis was done to understand the pattern of enrolment among different disciplines and how the growth in institutions offering TE found consistent with such enrolments.

5 It is expected that during 2016-17, about 31 million students are to be enrolled for higher education, out of which 18.5 million (60%) are expected to be enrolled in private-run institutions. About 14.3 million students (46%) are expected to take up TE at UG, PG and diploma levels out of total enrolment in higher education.
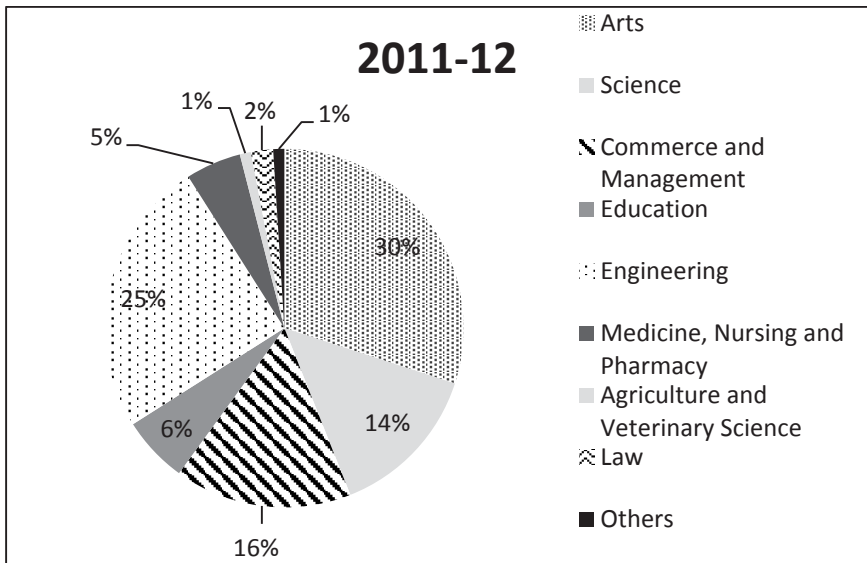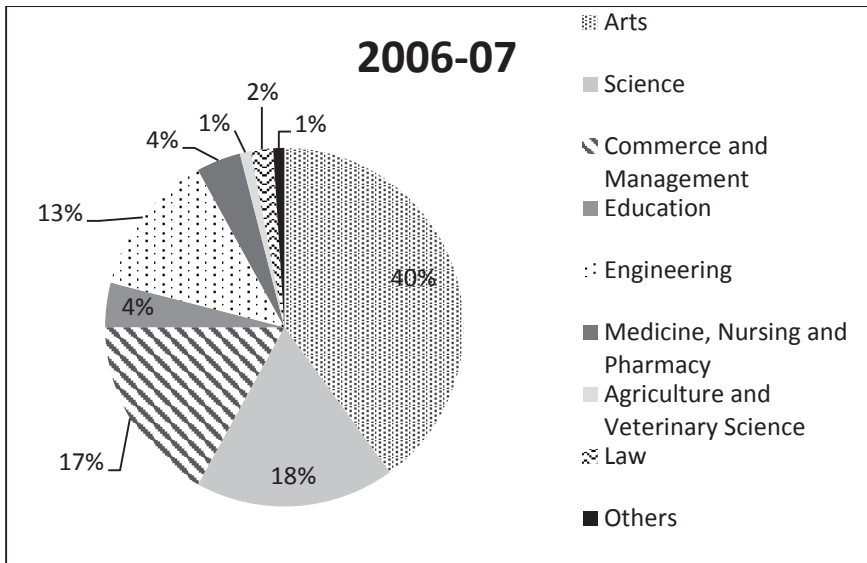
Figure 1 and 2: Discipline wise break-up of enrolment in higher education.
Source: GoI (2013b: 94)

As could be seen from Figure 2, during 2006-07 about 14 million students preferred different disciplines and out of which about 58% of the students (8 million) preferred Arts and Science discipline. Based on the statistics, during the year 2011-12, the share however reduced to 44% (9.64 million) though there was increase in number of students preferred this discipline in absolute term. Subsequently, there is a great discipline switch-over towards technical/professional education like engineering science, management, medicine, agriculture, law as the share increased from 37% to 49%. This overarching shift towards TE might be continued as the establishment of institutions providing TE is found to be demand driven.

5   Technical Education in Tamil Nadu and its Governance

In Tamil Nadu also the educational system has gone through changes in several dimensions. One major development is tremendous increase in the number of educational institutions. This has also resulted in enrolment of students especially in technical educational institutions. The educational policy of the state aims to fit itself well with overall national agenda of improving the access, equity and quality of education. The overall structure of the higher and technical educational system prevails in the state with the normal age of entry and leaving at each level is shown in the Figure 3. The Directorate of Technical Education (DTE), Government of Tamil Nadu, is responsible for formulating policies and promoting any coordinated development in the field of TE.
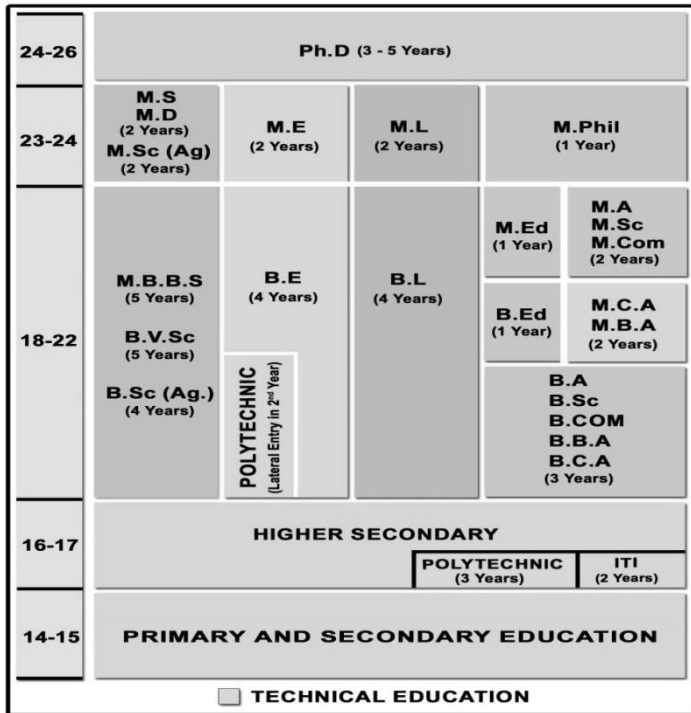
Figure 3: Education system and school to work transition in Tamil Nadu. Source: Adapted from Government of Tamil Nadu (n.d.)

Among the various TE offered in the state, 'engineering' courses are becoming popular among the students passing out of higher secondary education mainly due to various reasons. The mind-set is that acquiring any professional degree, including engineering, could improve the overall career opportunities of an individual. In addition, the students also believe that an engineering degree as a 'base' degree could open up possibilities to pursue higher studies in India as well as in abroad (Samuel 2013).

The duration of such engineering degree course is four years with the award of B.E degree. Every year, students get admitted to these engineering colleges through "single-window counselling system" organised by Anna University[6] (Government of

6 Government of Tamil Nadu introduced single window counseling system for admission of students to engineering colleges in Tamil Nadu during 1997–98. Every year, the admission is done at one centre (Anna University - a state run University) whosoever applied on the basis of merit. Around 50 to 65%

Tamil Nadu 2015). Few colleges and Deemed Universities, however admit the students based on the scores obtained in entrance tests conducted separately by these institutions.

Admissions to polytechnic colleges are done through the individual institutions but coordinated and monitored by the DTE, Government of Tamil Nadu. Polytechnic education is normally preferred by the less privileged and thus made affordable and accessible to many of the rural students who complete their secondary education. The courses like Master of Business Administration (M.B.A) and Master of Computer Applications (M.C.A) are also brought under TE. The students are eligible to apply for these courses after graduation. The number of institutions and the student intakes in various higher educational institutions including technical education institutions in Tamil Nadu are presented in Table 3.

Institutions	Government	Government aided	Self-Financing	Total
I. General				
A. Number of institutions				
a. Arts and Science colleges	62	133	438	633
b. Colleges of Education	7	14	651	672
c. Physical Education	-	3	8	11
d. Oriental colleges	-	10	-	10
e. Schools of Social work	-	2	-	2
Total	69	162	1097	1328
B. Student intake (sanctioned)[7]	156,000	356,000	373,000	885,000
II. Technical				
A. Number of Institutions				
Engineering	7	21	525	553
MBA and MCA (stand-alone)	-	-	69	69
Polytechnic	30	39	395	464
Total	37	60	989	1086
B. Student intake (sanctioned)*	15,770	25,692	407,988	449,450

* The data relate only to engineering and polytechnic colleges as the data were not available for MBA/MCA courses.

Table 3: Higher Educational Institutions in Tamil Nadu (2012-13). Source: Government of Tamil Nadu (2013a)

---

sanctioned strength in self-financing private engineering colleges are also being filled through single-window counseling system besides Government run colleges.

7 Means the maximum number of students allowed to be admitted in a particular institute as per the Government's approval. The DTE, Government of Tamil Nadu, is the competent authority to monitor the admissions.

In general stream, there are educational institutions offering arts and science degree programs, Bachelor degree in Education, physical education and other disciplines like social work. There are about 1,300 institutions in the state. Among the three major categories of institutions viz. fully funded by Government, partly funded by Government (government aided) and private funded, the private funding institutions dominate the system with an overall intake of about 0.9 million students. In the field of TE, there were 553 engineering colleges and 464 with a total intake of about 0.44 million students. Similar to general education, the TE is also dominated by privately funded education providers. The analysis below is an indicator of the trend for TE among students in Tamil Nadu with self-financing colleges (fully funded by private) dominating the intake of students over the years. The year wise details about number of students who could be admitted in the various colleges run by government and private are shown in Table 4.

Year	Government (1)	Government aided (2)	Private (3)	Total 4 = (1+2+3)	% of intake by private w.r.t total 5= (3÷4)x100
2006-2007	3,545	1,810	89,744	95,099	94.37
2007-2008	3,575	2,170	105,044	110,789	94.81
2008-2009	6,360	2,410	127,370	136,140	93.56
2009-2010	8,465	2,465	161,515	172,445	93.66
2010-2011	10,285	2,510	182,529	195,324	93.45
2011-2012	10,385	2,645	213,004	226,034	94.24
2012-2013	10,705	2,735	248,724	262,164	94.87
2013-2014	11,605	2,820	272,872	287,297	94.98
CGR (%)[*]	20.19	5.58	17.80	17.70	

[*] Denotes Compound Growth Rate between 2006-07 and 2013-14

Table 4: Student sanctioned strength in engineering colleges. Source: Government of Tamil Nadu (2013a)

Over the years, the sanctioned strength in the engineering colleges has been increased. During the year 2006-07, the total sanctioned strength was just 95,099. The student's sanctioned strength has increased to 287,297 with an increase of 17.70% (Compound growth rate) per year. Among the three types of institutions, the growth rate was relatively higher in government run institutions followed by privately run. Nevertheless, out of the total sanctioned student strength about 95% of the intake has gone to private run institutions.

Similarly, the approved sanctioned strength in polytechnic colleges has also increased during the above time period (Table 5). With a sanctioned strength of just 71,447 students during 2006-07, the strength has increased to 200,808 during

2013-14 with annual compound growth rate of 16.07%. The growth in student intake between government and private run institutions was about 19.56 and 17.36 %. However, about 85% (increased from 75.54% in 2006-2007 to 84.65%) of the sanctioned strength was with private funded institutions.

Year	Government (1)	Government aided (2)	Private (3)	Total 4 = (1+2+3)	% of intake by private w.r.t total 5= (3÷4)x100
2006-2007	5,080	12,399	53,968	71,447	75.54
2007-2008	5,160	12,980	69,316	87,456	79.26
2008-2009	6,085	13,453	90,844	110,382	82.30
2009-2010	6,090	13,658	112,443	132,191	85.06
2010-2011	8,430	13,716	136,194	158,340	86.01
2011-2012	11,670	13,842	145,910	171,422	85.12
2012-2013	12,910	14,257	159,264	186,431	85.43
2013-2014	16,255	14,567	169,986	200,808	84.65
CGR (%)[*]	19.56	2.03	17.86	16.07	

[*] Denotes Compound Growth Rate between 2006-07 and 2013-14

Table 5: Student sanctioned strength in Polytechnic colleges. Source: Government of Tamil Nadu (2013a)

6   Issues and Challenges

Given the above institutional framework of TE in the Tamil Nadu state and an increasing trend in the student seating capacity in both engineering and polytechnic colleges, lot of emerging issues and consequently challenges are now forthcoming. Some of them focused in this paper are privatisation of higher/technical education and fee structure and its disparity between government and private run institutions, gap between seating capacity and actual admittance, women in TE, quality of education owing to mushroom growth of institutions and lastly employability of the students after completion of the courses. The issues and challenges faced by TE institutes are similar in other states also and thus could be generalised.

7   Privatisation

The preceding discussions on the increasing number of institutions run by different funding agencies would clearly reveal and emphasise the significant role played by these private agencies in providing TE in the state vis-à-vis in the country. The

Government mostly acts as a regulatory body. In fact, the state government's priority is to provide elementary and secondary education and thus allocates more funds (budget) for improving the enrolment at schools rather higher education. It is estimated that during 2007-2012, about 43% of the public expenditure on education was incurred for elementary education, 25% for secondary education and the remaining 32% for higher education. With regard to Central Government's expenditure on education, 49% was incurred for higher education and the remaining for elementary (39%) and secondary (12%) education. The various states in India incurred about 74% of expenditure for school education of which 44% was on elementary education and 30% on secondary education and the remaining 25% for higher education (GoI 2013b).This is one of the reasons for more private participations in providing both higher and technical education.

However, Kapur and Mehta (2004) argued that the education system in India remains suspended between over-regulation by the Government and a discretionary privatisation is unable to mobilize capital in productive ways resulting in a sub-optimal structuring of higher education. Considering the huge youth population, the scale and the complex demand for higher education, it may not be possible for the Government to tackle challenges alone instead leaving the private partners to shoulder the responsibilities.

8   Fee Structure

Another closely related issue in providing TE is the fees collected by the technical educational institutes from the students. Since the TE is more or less privatised and also cater to the larger demand of students who aspire for such education, there existed different fee structure between government and self-financing private engineering colleges. In Tamil Nadu for instance, in a government engineering college, a student will be paying INR 9,180 per annum, and in a self-financing college, under government quota, an amount of INR 40,000 for non-accredited[8]engineering courses and INR 45,000 for accredited courses is charged. Besides, admission is also done under the umbrella Management Quota[9] and a student has to

---

8 Accreditation is a quality assurance scheme for TE. It is open to all institutions in Engineering and Technology, Management, Architecture, Pharmacy, Hotel management and Catering Technology, Town and Country Planning, Applied Arts and Crafts (http://www.nbaind.org). The higher educational institutions are encouraged for assessment and accreditation either by National Assessment and Accreditation Council (NAAC) in case of Arts and Science colleges and Universities or by National Accreditation Board (NAB) in case of Technical institutions. However, certain technical institutions offer non-accredited courses also.

9 Every institute admits certain percentage of seats for which the management has discretion to give admission on factors other than merit. Usually, out of sanctioned strength, a certain percentage (65%)

pay not less than INR 70,000[10].Such disparity in fee structure is highly criticized as selection of the institutions by students is left to the demand and supply forces. Since the seating capacity in government run is also limited (about 12,000) many of the students have left with the choice of selecting private funded institutions. The enhanced fee structure in private institutions should be justifiable only when they provide better facilities than the government run institutions. This warrants an independent agency to watch over the performance of any institutions in terms of quality education. Similar situations prevail in polytechnic colleges though the fee band is not as high as that of engineering colleges for the obvious reasons.

Considering the greater role played by the private players offering TE, it is very crucial that while framing any statute or imposing any regulations on fixing fee structure, these private players have to be given greater autonomy in management of educational institutes including the fixation of fee structure. However, the fees need not be at an exorbitant level and a balance has to be struck between the autonomous and a reasonable and a justifiable fee structure to break even (Rahman and Islam 2014). The overall vision will be that the students get better quality education and facilities.

9   Seat Capacity and Admittance

The scenario of a high growth rate in the establishment of new technical education institutions is evident. Nevertheless, there is a huge gap between sanctioned strength and students admitted in the technical institutions all over the country (Gosavi 2013). In case of Tamil Nadu, Table 6 shows that about 9.70% (2008-09) to 36.56% (2013-14) of the seats sanctioned were kept unfilled (vacant) in the engineering colleges during the time period from 2006 to 2014 in Tamil Nadu.

---

is earmarked to be filled from State level merit list and the rest (35%) are allowed to be filled by the management at their discretion.
10 Based on the web site details of the few colleges in Tamil Nadu.

Year	Government		Government aided		Self – financing		Overall	
	Eng.	Poly tech	Eng.	Poly tech	Eng.	Poly tech	Eng.	Poly tech
2006-2007	1.37	5.55	1.22	6.24	21.68	9.21	20.51	8.65
2007-2008	0.00	2.50	0.00	5.10	14.16	7.59	13.32	6.92
2008-2009	1.79	5.55	0.00	6.24	10.28	9.21	9.70	8.65
2009-2010	2.66	4.89	2.88	11.96	32.12	23.89	30.37	21.78
2010-2011	5.27	12.46	0.16	11.69	17.83	30.92	16.94	28.27
2011-2012	4.92	5.44	0.00	13.37	30.03	32.38	28.70	29.01
2012-2013	3.88	11.60	0.00	14.62	31.41	32.26	30.39	29.48
2013-2014	16.06	10.37	4.79	19.02	37.69	45.45	36.56	40.69

Table 6: Percentage of Vacant seats against seating capacity. Source: Government of Tamil Nadu (2013a)

The vacant seats in case of polytechnic colleges were also critical as 6.92% (2007-08) to 40.69% (2013-14) of the seats were not filled up. This raises the basic question whether TE lost its attraction? Whether increase in establishment of the technical institutions seems to be more of supply-driven rather than market driven? Many reasons are quoted for a rising trend in unfilled seats in both engineering and polytechnic colleges. One such reason is that trend to move towards conventional degree courses rather TE. This trend also highlights the failure of technical institutes to utilize the opportunity and their preparedness on employability. Combined with this is also a skewed growth of engineering and technical disciplines within the institutions. This necessitates that future expansion should achieve more disciplinary diversities; concentration on core disciplines and increasing capacity in already established institutions rather than creating new institutions.

10   Women in Technical Education

Women constitute about 48% of the total population in India. There is a phenomenal growth all over the country in the enrolment of women in schools and colleges since independence. In the following section, the analysis on the trend in girl students opting for TE specifically in Tamil Nadu also throws some interesting developments on this perspective. The details are shown in Table 7.

Year	Government		Government aided		Self - financing		Overall	
	Eng.	Poly tech	Eng.	Poly tech	Eng.	Poly tech	Eng.	Poly tech
2006-2007	32.34	33.84	29.36	17.17	34.84	7.89	33.89	11.43
2007-2008	33.57	35.50	35.13	16.51	36.30	8.00	35.58	10.99
2008-2009	38.85	37.45	37.34	20.14	37.12	7.85	37.26	11.07
2009-2010	36.60	38.07	36.17	16.32	34.08	6.40	34.52	9.33
2010-2011	36.78	31.44	38.87	15.52	34.83	6.91	35.25	9.42
2011-2012	40.18	25.69	40.66	16.57	35.27	6.88	35.85	9.54
2012-2013	43.69	24.17	41.54	15.60	36.48	6.91	37.01	9.21
2013-2014	42.40	19.86	38.55	13.79	34.28	7.04	34.94	9.27

Table 7: Percentage of girl students admitted in Technical Institutions. Source: Government of Tamil Nadu (2013a)

The number of girl students undergoing TE has been increasing (Table 7). However, only about 34.94% of the girls (2013-14) were admitted in engineering colleges and about 9.27% (2013-14) got admitted in polytechnic colleges though there is no ceiling on sanctioned strength for girl students. The above table also indicates that the trend in percentage of girl students admitted in polytechnic colleges is found to be declining, more particularly, in Government run colleges. Such decline in the demand for polytechnic courses in Tamil Nadu is due to factors like rise in number of engineering colleges on one side and increase in number of intake in Government run engineering colleges on other side, where the fee structure is nominal. Many of the students even leave the polytechnic colleges when they got admission in engineering colleges. In certain situations, engineering colleges are even competing with polytechnic colleges. The following news clipping substantiates the above observations.

> *"(…) demand for polytechnic courses in Tamil Nadu declined owing to a variety of factors, including the rise in number of engineering colleges. Many of those who enter polytechnics leave when they get admission through counselling elsewhere. So many seats remain vacant, but rules do not allow admission after the due date. Many private engineering colleges admit students after the due date, but most of them charge Rs. 30,000 to Rs. 40,000 a semester, akin to private engineering colleges, and offer no significant placement opportunities. And while government-run colleges have registered an increase in the number of girls, but those that offer evening shifts have fewer women students. It is also because many mechanical and electrical companies do not even allow girls in their recruitment procedures."*
> *(The Hindu 2011)*

11 Quality of Education

Yet another major challenge in TE is improving the quality of education by means of strengthening the faculty with required qualified teachers in different disciplines, providing academic autonomy, improving transparency in governance and proper regulation of the institutions. Among these, one of the serious concerns affecting the quality of TE is the lack of qualified faculty and shortage of faculty in many institutions though All India Council for Technical Education (AICTE) insists that 1:15 Teacher-Student ratio in engineering colleges and 1:20 in polytechnics has to be followed. Thus the most acute problem with the growth in number of technical educational institutions is inadequate quality on account of lack of competent faculty and lack of accountability (Sahu et al. 2008; Rani 2010; Gosavi 2013). Hence, there is shortage of faculty and the following news report supports the argument.

> *"(…) only 4 of the 10 government engineering colleges have full-time principals and 17 of the 41 government polytechnics do not have full-time principals. Nearly half of teachers' posts in government engineering colleges and polytechnics are lying vacant. The 10 engineering colleges have just 33 professors against a sanctioned strength of 50 and have a shortage of 130 Assistant professors. In the 41 polytechnics, there are just seven heads of department against a sanctioned 141, while 993 posts of lecturers are lying vacant." (The Times of India 2014)*

To address this issue, the Government of India with the financial assistance from the World Bank launched a Technical Education Quality Improvement Program (TEQIP) as a long-term Program of 10-12 years, for systemic transformation of the technical education system. The project mainly aims at strengthening the institutions to produce high quality engineers for better employability, scaling-up postgraduate education and demand-driven research and development and innovation, establishing Centres of Excellence for focused applicable research, training of faculty for effective teaching and enhancing Institutional and System Management effectiveness. About 190 Engineering Colleges were selected at All India level to participate in TEQIP II and 9 Institutions were selected from Tamil Nadu. The project cost is shared by Central and State Government in the ratio of 75:25. The above move is only a small step and has a long way to achieve the desired quality.

12 Employability

Employability focuses basically on the employee's needs and aims to match their requirements from their own perspectives. An appropriate TE would provide the

required knowledge and skill and make the students graduating from technical institutes employable. Thus providing employment to the students graduating from engineering and polytechnic colleges is yet another major challenge faced by technical institutes while providing TE. Technical educational institutions are to provide the required skills to the students so that the employers should not fall short of their requirements (Padmini 2012; Somalingam and Shantakumari 2013).

Most of the concerns in today's discussion fundamentally revolve around employability skills or job readiness skills possessed by the students graduating from both engineering and polytechnic institutes to be fit and remain in the world of work. Unfortunately, it is found that 64% of employers are only somewhat satisfied or found to be worse with the current engineering graduate skills and the country need to improve the skill set of the technical graduates and focus on higher order skills and creativity (Blom and Saeki 2011). Thus, there is a gap between qualifications attained by the students and how they should be trained for the job market.

> *"(...) the employability level in technical education is only 20%. The educational system concentrates only on transfer of knowledge and not on developing skills and the area that is ignored is the domain skill, which is what the industry rues about." (The Hindu 2012)*

Various reasons were been identified for the gaps. The graduating students lack various skills beyond mere communication skills. The decision making skills, problem solving and the ability to work with people with different backgrounds are also found lacking (Mehra and Virgandham 2013). There is also a need to change the current curriculum based on the industry-employer expectations (Gopalakrishnan and Sukmar 2013; Chithra 2013).The curriculum and the mandate of the educational institutes need to be updated to focus on the demand of industry and the job opportunities (Kasturi 2012) and majority of technical institutions in the country had poor linkages with industry (Kasturi 2013). This realization has driven many of the technical institutes for an increased awareness and to restructure the curriculum wherever essential.

13   Conclusion

TE in India, covering various courses and programs in engineering, technology, management, architecture, town planning, pharmacy, applied arts and crafts, hotel management and catering technology, has been witnessing significant changes both quantitatively and qualitatively since independence. Parallel to such develop-

ments, there is also increasing pressures for academicians or TE providers to integrate skill training vis-à-vis job orientation with that of academic subjects to make the graduating students employable or job-fit.

India's current demographic transition is looking for an opportunity to enjoy a dividend from the demographic burden of the erstwhile. As per the current development, the age structure of India's population plays a major role in providing young labour force to the job market in the next two to three decades. With the increasing population and more dynamism of young generation population in the demographic profile, the country is poised to create more job opportunities for such labour force. However, worthwhile changes can be possible only with clear cut policies on industrial development, technology adoption, research and development and objectives of TE and training (Sen 1989).

In order to capitalize these changes in technical education system and to meet the increasing demand for skilled personnel, the technical institutes in the country are now playing a critical role. Such technical institutes aim to prepare the students to become technically qualified with specialised skills and thus ensure employability. These technical institutes are no doubt the major players in providing such skills and the industrial development of country depends on these institutes.

The current growth of the technical institutes with an increase in numbers and the privatisation of such educational institutes are quite obvious from the preceding analysis. Such expansions have thrown up a wide variety of challenges especially to Government to maintain the quality of education. The Government of India and State Governments could not fully cater to the needs of matching the demand for providing TE by establishing needed technical educational institutions. Hence, the numbers of self-financing colleges (private institutions) are increasing and they also now shoulder the responsibilities, even more than any public-run technical institutes in preparing the youths towards the world of work.

Besides, the mandatory imposition of quality controls in education though largely rests with the government; the problem of plenty is now becoming a real challenge in a democratic set up. Equally important is that an adequate return on investment made by the students who undergo TE has to be ensured as education is considered to be a process of skill and training and treated on par with capital formation. Therefore, in this current scenario of superfluous supply of institutions, a long term strategy is essential to create more jobs and employability of the graduating students to be fit for such world of work. Such strategy needs to focus more on academic strength and their rigor with enhanced monitoring of quality education, besides a strong support from industry to correct mismatch in the current technical education system. In the threshold of major changes in the TE, the country has no other options except to build more credible technical and skill

oriented professional educational system for the welfare of the youths who enter the world of work.

References

Aggarwal, Y. P. and Thakur, R. S. (2013): Concepts and Terms Used in Educational Planning and Administration: A Guide Book. New Delhi: National University of Educational Planning and Administration.

Ahmed, T. and Satija, M. P. (2005): Growth of technical education at degree level in Punjab: A historical perspective. In: The Indian Journal of Technical Education. Vol. 28, No. 3, pp. 81-91.

AICTE (2014): General information. URL: www.aicte-india.org.

Anjum, B. and Tiwari, R. (2012): An Exploratory Study of Supply side issues in Indian Higher Education. In: Asia Pacific Journal of Marketing and Management Review. Vol. 1, No. 1, pp. 14-24.

Basant, R. and Chandra, P. (2007): Linking Technical Education to Business Growth: A Case Study on Building Technical Skills in India. Ahmedabad: Indian Institute of Management. W.P. No. 2007-03-08, March 2007. URL: http://www.iimahd.ernet.in/assets/snippets/workingpaperpdf/2007-03-08_PankajChandra.pdf.

Blom, A. and Saeki, H. (2011): Employability and Skill Set of Newly Graduated Engineers in India. World Bank. Policy Research Working Paper No. 5640. URL: http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-5640.

Chithra, R. (2013): Employability Skills: A Study on the Perception of the Engineering Students and their Prospective Employers. In: Global Journal of Management and Business Studies. Vol. 3, No. 5, pp. 525-534.

Confederation of Indian Industry (CII) (2013): Status of Higher Education in South India 2013. URL: https://www2.deloitte.com/content/dam/Deloitte/in/Documents/IMO/in-imo-higher-education-in-southern-region-noexp.pdf.

Gopalakrishnan, S. and Sukumar, V. (2013): An Empirical Study on Assessment of Employability Skills Implication for University Industry Linkage. In: IOSR Journal of Business and Management. Vol. 4, pp. 67-69.

Gosavi, V. P. (2013): Threat of vacant seats in engineering colleges: Reasons and Remedies. In: American International Journal of Research in Humanities, Arts and Social Sciences. Vol. 2, No. 1, pp. 75-80.

Government of India (2011): Working group on Technical Education for the 12th Five Year Plan. New Delhi: Ministry of Human Resource Development.

Government of India (2013a): All India Survey on Higher Education 2011-12. New Delhi: Ministry of Human Resource Development.

Government of India (2013b): Faster, More Inclusive and Sustainable Growth, 12th Five Year Plan (2012–2017). New Delhi: Planning Commission. Vol. III.

Government of India (2014a): Ministry of Health and Family Welfare. URL: http://populationcommission.nic.in/content/933_1_LiteracyRate.aspx.

Government of India (2014b): Adolescents and Youth Population, Ministry of Home Affairs. New Delhi: Registrar General and Census Commission of India.

Government of Tamil Nadu (2013a): Policy Note. Chennai: Higher Education Department.

Government of Tamil Nadu (2013b): Statistical Handbook of Tamil Nadu. Chennai: Directorate of Economics and Statistics.

Government of Tamil Nadu (2015): Excerpts from the Policy Note of the Higher Education Department of Government of Tamil Nadu. Tamil Nadu: State Council for Higher Education. URL: http://www.tnuniv.ac.in/education_policy.html.

Government of Tamil Nadu (n.d.): Educational System in Tamil Nadu. URL: http://www.tn.gov.in/schooleducation/statistics/picture1-edn.htm.

Kasturi, C. S. (2012): Engineering colleges fail industry link test: AICTE-CII study. In: Hindustan Times, 3. November 2012. URL: http://www.hindustantimes.com/newdelhi/engg-colleges-fail-in-dustry-link-test-aicte-cii-study/article1-954103.aspx

Kasturi, C. S. (2013): Education and Employment Bridging the Gap. In: State of the Urban Youth, India 2012. Pp.113-118.

Kohli, D. (2011): Organization Learning, Culture and Quality Initiatives in Technical Education Institutions: A case study with reference to Punjab and Haryana State. Thesis. Punjabi University Patiala. URL: http://hdl.handle.net/10603/4473.

Kapur, D. and Mehta, P. B. (2004): Indian Higher Education Reform: From Half-Baked Socialism to Half-Baked Capitalism. Harvard University. CID Working Paper, No. 108.

Mani, S. and Arun, M. (2012): Liberalization of Technical Education in Kerala: Has a Significant Increase in Enrolment Translated into increase in Supply of Engineers? Thiruvanthapuram: Centre for Development Studies. Working Paper No. 48.

Mehra, D. and Virgandham,V. (2013): Communication Skills for enhanced Employability of Engineers: A Review of Literature. In: Confluence. Vol. 3, No. 2, pp. 70-76.

Naik, S. R and Agnihotri,G. M. (2013): Higher Education in Mother Tongue: An Ignored Problem in India. In: Indian Streams Research Journal. Pp. 1-7.

Padmini, I. (2012): Education Vs. Employability: The Need to Bridge the Skills Gap among the Engineering and Management Graduates in Andhra Pradesh. In: International Journal of Management and Business Studies. Vol. 2, No.3, pp. 90-94.

PeopleStrong (2014): India Skills Report 2014. Haryana: Confederation of Indian Industry and Wheel Box. URL: https://wheebox.com/logo/FullVersion.pdf.

Rahman, C. and Islam, R. (2014): Impact of Globalization of Education in India. In: Indian Streams Research Journal. Vol. 4, Issue 8. URL: http://isrj.org/UploadedData/5318.pdf.

Rani, P. G. (2010): Changing Landscape of Higher Education in India: The Case of Engineering Education in Tamil Nadu. New Delhi: National University of Educational Planning and Administration (NUEPA). Occasional Paper No. 36.

Sahu, A. R., Shrivastava R. L. and Shrivastava, R. R. (2008): Key Factors Affecting the Effectiveness of Technical Education - An Indian Perspective. Paper presented at the Proceedings of the World Congress on Engineering. London. July 2.-4., 2008.

Samuel, A. (2013): Engineering a Future. URL: http://www.thehindu.com/features/education/engineering-a-future/article4794903.ece.

Sen, B. (1989): Development of Technical Education in India and State Policy-A Historical Perspective. In: Indian Journal of History of Science. Vol. 24, No. 4, pp. 224-248.

Sharma, B. (2012): India - A Lucrative Destination for FDI in Higher Education. In: International Journal of Marketing, Financial Services & Management Research. Vol. 1, No. 8, pp. 54-65.

Shivani and Khurana, S. (2012): Technical education system in India: Present Scenario. In: International Journal of Research in Economics and Social Sciences. Vol. 2, No.10, pp. 39-49.

Somalingam, A. and Shanthakumari, R. (2013): Testing and Exploring Graduate Employability Skills and Competencies. In: International Journal of Advancement in Education and Social Science. Vol. 1, No. 2, pp. 36-46.

The Hindu (2011): Press Release from 19th September 2011. URL: http://www.thehindu.com/todays-paper/tp-features/tp-educationplus/vacant-seats-in-tamil-nadu-polytechnics/article2466153.ece.

The Hindu (2012): Press Release from 9th January 2012. URL: http://www.thehindu.com/features/education/issues/a-5es-strategy-for-education-in-tamil-nadu/article2787550.ece.

The Times of India (2014): Press Release from 20th May 2014. URL: http://timesofindia.indiatimes.com/home/education/news/Only-4-of-10-Tamil-Nadu-govt-ngineering-colleges-have-principals-RTI/articleshow/35363191.cms.

Higher Education / University: Taking the Skills March Forward in India – Transitioning to the World of Work

Mona Khare

1 Prologue

This chapter tries to capture the changing profile of Indian higher education seekers and the system per se. It is argued that Higher Education (HE) in India needs to make a leap from education for the sake of education to education for better livelihood to education for better living to provide for smoother transition to work for HE graduates. The chapter discusses some interesting issues that HE needs to confront. These can be highlighted upfront as (1) on one hand there is excessive dependence on non-formal system of vocational training and on the other hand young graduates coming out of the formal HE system are unable to meet the industry expectations on job readiness. (2) On one hand the percentage of educated job seekers is increasing while on the other a very miniscule percent is getting placed. (3) The limited size of professional courses is revealed by the ratio of professional to non-professional enrolment being 1:3. (4) The problem of employability skill gaps is higher in the general academic non-professional graduates that constitute the majority. This certainly demands a relook at a policy level change to rationalize and reduce the existing disparity and focus on Vocationalisation of education.

The chapter will first introduce the theoretical background for linking Education Growth and Human capital in the light of changing global priorities. Looking at the education and training profile of educated job seekers in India the chapter then describes the existing Higher education system to showcase its preparedness/lack of preparedness to produce industry ready graduates. It then discusses the new initiatives taken for rejuvenation and Vocationalisation of HE in the country concluding with the challenges herein being faced for preparing HE graduates for work.

2   Introduction

Debates over the differential outcomes afforded by a university education, the market value of a liberal versus technical and vocational education, the humanistic knowledge based versus skill based teaching learning approach are of an eternal nature. While there exists a body of academics that argue for the importance of a humanistic education in the personal and intellectual growth of students and the employers too are equally divided in their assessments of liberal or vocationally oriented university programmes, but all value employees who possess the 'employability skills' needed to meet the demands of the new economy – that is, graduates who are socially adept and who have the capacity to solve problems, judge merit, and make decisions. This concept is fast engulfing both employers and employees in developed as well as the developing world.

2.1   *Good Quality Human Resource*

This section gives a brief account of the rationale for this theme and its salience in the policy debate along with its treatment in existing literature. The fact cannot be denied that a good quality human resource base is extremely important in today's highly competitive environment. The very concept of development has evolved in this direction in the past two decades moving from income and income distribution to human resource development. This is the very reason for the marked shift in the welfare approach of education to the right based approach – providing the foundation for the right to dignified living. Investment in education to develop human capital and its contribution to economic development and growth is evidenced in literature by many authors (Shultz 2000; Becker 1964; Hanushek and Kimko 2000; Krueger and Lindahl 2001; Hanushek and Woessmann 2007; Kingdon and Soderbom 2007; Chadha 2004; Mathur 1990). Macro-economic evidence shows that human capital leads to economic growth (Mankiw et al. 1992; Barro 1997; Barro 2000; Krueger and Lindhal 2001; Stevens and Weale 2003).

      The new wave of linking 'education to work' resultant from emerging labour market needs, evidences of higher salaries (income elasticity of HE higher than all other levels of education) and better quality jobs with rising 'skills hierarchy' from the primary to the tertiary levels (World Bank 2002; Chadha 2004; Varghese 2012; Khare 2012) has been quite evident in global education debates in the past decade. Social and economic returns of human capital (generally measured by education attainment levels) are at least as important as those of physical capital (De la Fuente 2003). There are not just direct but also indirect educational benefits

to growth as also type quality and efficiency of education matter (Sianesi and Reenen 2003).

2.2   *Shifting Global Priorities*

Two emerging shifts that have taken shape in deliberations on Post 2015 Education For All (EFA) / Millennium Development Goals (MDGs) on education seem to reflect the above ideology. These being-Shift in global emphasis from Elementary to higher and Vocational education (18th CCEM) and from access, completion to 'Learning Achievements' post 2015. In fact, in the light of the fact that The United Nations (UN) has made employability one of its four priorities for national policy action on youth employment, the UN's Youth Employment Network has suggested that all countries need to review, re-think and re-orient their education, vocational training and labour market policies to facilitate the school to work transition and to give young people a head start in working life (UN 2001) The close connect between HE and the economy, in particular the labour market has had a long standing. The famous Robins Report as back as 1963 had made an opening observation on the four aims of HE as, "We begin with instruction in skills suitable to play a part in the general division of labour (Robbins 1963) and went to the extent of stating "few would enter HE without an eye to subsequent employment."

3   **Education and Employment**

3.1   *Skills for Employability*

Turn of the century, particularly the nineties brought many changes in the world economy. As a result, gradual withdrawal of the State financing and increasing private participation and expenditure coupled with a socio-politico shift towards a more dynamic post- industrial knowledge driven economy has set new aspirations in the society and the resultant demands from the HE system. Both the labour market and the HE system have become more segmented in recent years. While the labour market has become more flexible and limited (jobless growth), the HE systems have become more specialised and costly thereby generating greater concerns over the 'value and returns of a University degree' as against the social prestige attached to it traditionally. The relative looseness in the relationship between HE and the labour market of the yesteryears has thus got ruptured and new questions are being posed on the "specific role of HE in regulating skilled labour, and the overall matching of the supply of graduates leaving HE to their actual economic

demand and utility" (Bowers-Brown and Harvey 2004). Today's universities thus have wider missions than creating and disseminating 'knowledge for its own purpose' 'create good citizens' – the Humboldt's *Bildung*. They are expected to educate build expertise; participate in development of knowledge, and ensure that both the knowledge created and the experts educated are relevant to society. In the context of above stated developments, the realization on wide gaps in 'learning' further extended to ' Employability Skills' in the last decade. The World Bank had defined them to be important for progress of self and nation as back as 1990.

> *"Whether or not expanded educational opportunities will translate into meaningful development – for an individual or for society – depends ultimately on whether people actually learn as a result of those opportunities, i.e., whether they incorporate useful knowledge, reasoning ability, skills and values." (UNESCO WCEFA Declaration 1990)*

According to the Bank, Learning outcomes, refer not only to the "3Rs", but also to soft-skills (teamwork, critical thinking, problem solving etc.) and to 'specific technical or vocational skills related to an occupation' (see chapter 2). This has resulted in changing skills needs (with 'soft skills', such as interpersonal and communication skills increasingly valued (Belt and Richardson 2005) and also a shift towards part-time and more flexible work practices.

3.2   Building the Indian Case

India is today one of the fastest growing economies fuelled by a service sector growth. With a huge human resource base and one of the youngest populations in the world, youth aspirations are riding high on higher education and high-class life style. India's demographic bulge at the centre – with a growing proportion of people in the age group of 15-59 can become its biggest advantage; if handled properly. With a median age of 25 years, India has over 550 million people below the age of 25 year (Pwc 2012). Presently about 11 million students are in the Higher Education system which is barely 20% of the 17-23 year old population which the Government plans to increase to 30% by 2020. Thus the biggest challenge lies in harnessing this so called "demographic dividend" (Pwc 2012).

  The changing landscape of the Indian labour market also calls for a broader set of employability skills and their constant up gradation. The role that a responsive as well as dynamic higher education sector can play in harnessing this so called "demographic dividend" cannot be debated at any platform. But, the industry has been rather disappointed with the kind of graduates emerging from our HE particularly for want of the right kind of employability skills. Ironically, it is

not just the uneducated and untrained that have been said to lack skills but it is also the educated that consistently lie below the required standards.

Although, Graduate Employability is not just a rising concern in India but all across the globe, the challenges of skill development and education advancement in countries like India are all the more complex given its large population, vast geographical, cultural, social diversities and gender ethnics. These multiple challenges severely limit the chances of gainful employment – be it paid employment or self-employment. With the gradual withdrawal of the public sector in generating new employment, increasing privatization and globalization, emerging new job responsibilities of a 'Knowledge society', HE in India has come under tremendous pressure for want of giving renewed impetus to lifelong learning and development of skills and competencies. Boston Consultancy Group's study in 2007 had clearly indicated that by 2020 while India will have surplus of 56 million working people, the rest of the world would encounter a shortage of 47 million working people. A more recent estimate of the number of people to be skilled by Mehrotra et al. (2013) puts this figure at 580 million by 2022 with two million getting added every year. The projected numbers required to be skilled by 2022 is about half of this quoted numbers of which a major proportion is to come through formal training and HE (Table No.1).

Formal Vocational Training	136
VT for those informally trained	55
General education higher secondary and beyond	100
Total	291

Table 1: Numbers to be skilled by Education Level in 2022 (in Million). Source: Mehrotra et al. (2013)

However, Skilling this large and growing young population from an exceedingly small base would be a big challenge for India.

4   Overview of Education and Training of Indian Labour Force

4.1   Low Knowledge Base

An important element of India's labour force is its poor education levels. As evi-
dent from the Figure 1 it is only 17% who have education higher than secondary
level (including HS, diploma, certificate, graduate and above education) – a min-
imum benchmark level globally accepted for work skills.
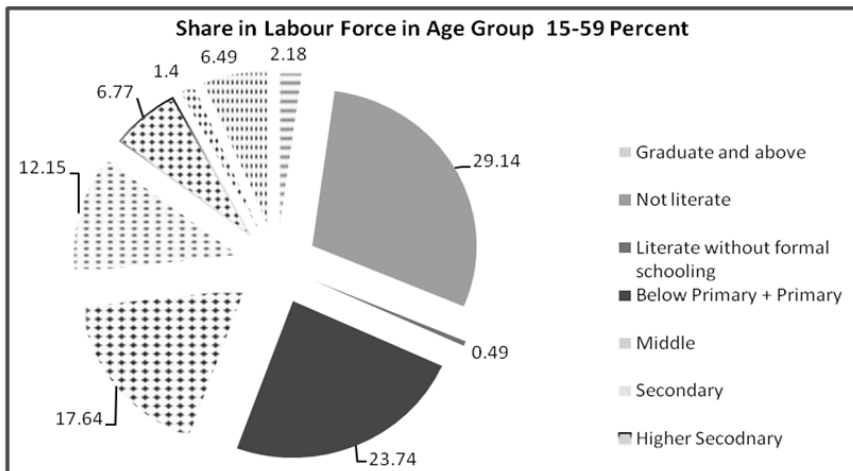
Figure 1: General Education Level of Labour Force. Source: Based on NSS 66th
Round (2009-10)

Of these it is only about 8% that possess a formal college education with a gradu-
ation plus degree. The proportion receiving any kind of vocational training in this
age-group is even worse merely 10% as per 66th Round of NSS (2009-10). Here,
too a vast majority of workers received non-formal vocational training.

4.2   Sectoral Share of Educated and Trained Labour Force

A break-up of the data by major sectors – Agriculture and allied occupations, Man-
ufacturing, non-manufacturing and service sectors reveal a far more interesting
picture (Figure 2).
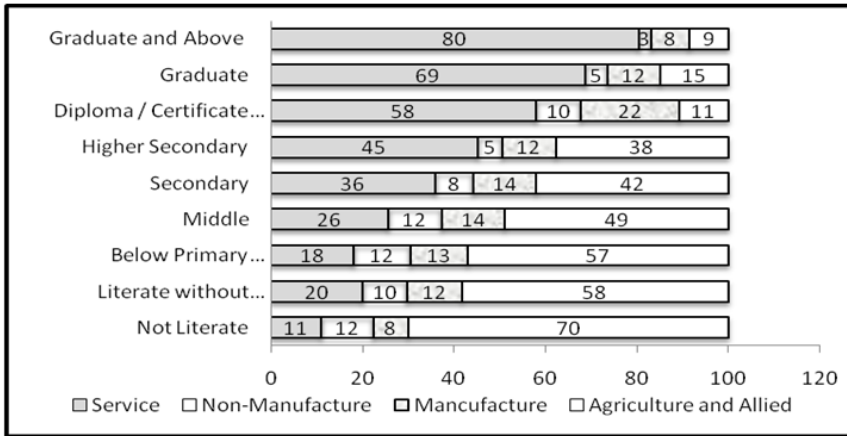
Figure 2: Sectoral Share in Labour Force in age group 15-59 by education level (%). Source: NSS 66th Round (2009-10)

A clear-cut preference of highly educated in the service sector can be deduced with almost reversal of the percentage occupied in the service sector from the higher secondary level (42% of secondary graduates being occupied in agriculture sector and 45% of HS graduates employed in service sector). This percentage is as high as 70% and more for those that possess a college degree.

What is even more worrisome is the fact majority have been trained informally. Formal system includes: (i) higher technical education being imparted by professional colleges (ii) vocational education being imparted in schools (iii) technical training being imparted by specialised institutions and (iv) apprenticeship training provided by the industry. A number of agencies provide vocational education/training at various levels (GoI 2008). "Dependence on non-formal vocational training to such an extent highlights the grossly inadequate system of vocational training that currently exists in the country" (GoI 2013). In the agriculture sector, the most predominant source of informal training is hereditary sources while in the manufacturing it is on the job. Among the trained, as high as 86% in agriculture and 91.7% in manufacturing sector are those that have only received non-formal training. It is only in the Services sector that the share of formally trained is reasonably high (64.4%) (NSS 2009-10).

This clearly reveals the preference of highly educated and formally trained workers in the fast growing services sector. This preference is a fall out of both-service sector employees preferring highly educated trained employees and vice versa. Unfortunately, it would not be correct to claim that this is because of

India's economic transition directly from agriculture to the services sector that to-day contributes about 75% of India's Gross Domestic Product (GDP). Because, the case on the employment front is not the same where still a majority are occu-pied in the agriculture and allied activities a major section of which is subsistence level traditional agriculture. However, future projections reveal that 60% incre-ments in the jobs would be in the services sector. This should be considered posi-tive in the light of India's demographic bulge at the centre – with a growing pro-portion of people in the age group of 25-50 who are constantly craving for white collared jobs. Similar, sectorial shifts towards various service industries elsewhere in the world should also be considered a welcome trend for India's HE graduates provided they are able to reap the benefits by their competitive edge. The current picture although is far away from being rosy.

On one hand there is an excessive dependence on non-formal system of vocational training and on the other hand the young graduates coming out of the formal HE system are unable to meet the industry expectations on job readiness (see chapter 12). The huge gap between the supply of educated and also employ-able human resource and its demand by labour market in the country is indeed an early warning signal. This gap is almost 50% for most of the high growth tech sectors in the country. As per a NASSCOM report only one fourth of India's en-gineering graduates and only 10% of its other graduates are employable. Another recent study by PurpleLeap reveals that one third of graduates from the Tier II, III and IV engineering colleges are not employable even after interventional training. The number of readily employable graduates in Tier II, III and IV colleges equal the number of the total talent pool in tier I engineering colleges (TOI 2012) which jointly contribute to less than 1% of the engineering graduates in the country. On a scale of ten the gap between the employability of technical graduates between Tier I and Tier II cities is worrisome.

The situation is far worse in case of graduates from other streams. A slide in India's global ranking in the 5th pillar of global competitiveness Index pertaining to Higher Education and training, from 55 in 2007-08 to 85 in 2010-11 is further testimony to the above observations. (The Fifth pillar: Higher education and train-ing of this index measures secondary and tertiary enrolment rates, quality of edu-cation as evaluated by the business Community and the extent of staff training for ensuring a constant upgrading of workers' skills.) The growing number of edu-cated job seekers is bound to aggravate the above crisis.

5   Education Profile of Indian Jobseekers and Labour Market Trends

5.1   *Educated Job Seekers Increasing*

Though, even today a large chunk of India's labour force is engaged in the informal sector, the percentage of illiterate workers is continuously decreasing from 57.5% in 1983 to 48.5% in 1993-94 to 44.1% in 1999-00 to a further down to 38.8% in 2004-05 with a corresponding increase in the educated workers. Not only the headcount number but also the percentage of educated job seekers to total jobseekers has increased from 70.7% in 2000 to 76.5% in 2009. On one hand the percentage of educated job seekers is increasing (Figure 3) while on the other a very miniscule percent is getting placed (Figure 4). Out of the ones that registered themselves with the employment exchange, not even 5% are getting placed. This is a rather scary picture.
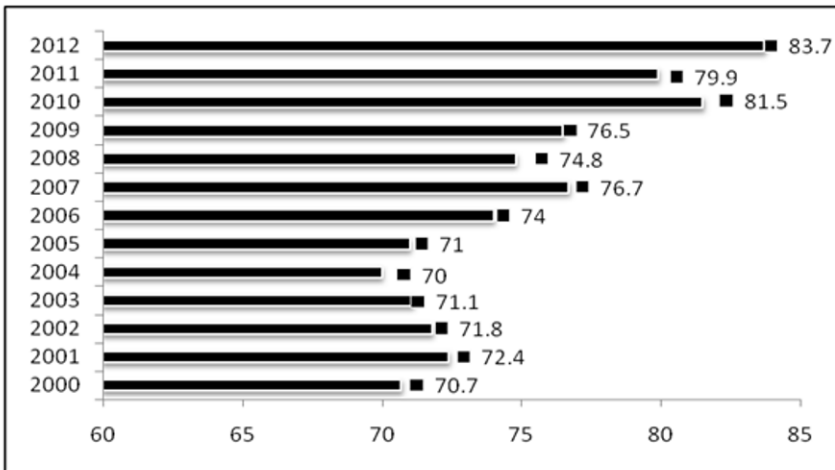
Figure 3: Percent of Educated Live Register to Total Live Register in Employment Exchange. Source: DGET (GoI) (various years)
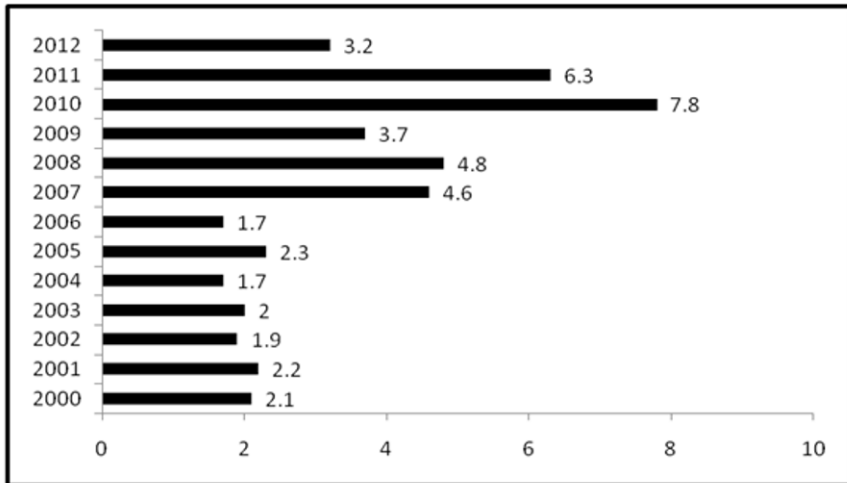
Figure 4: Percent placement to Total Live Register in Employment Exchange.
Source: DGET (GoI) (various years)

5.2   *Increasing Share of Higher Education Graduate Job Seekers*

Today, increasing number of persons is registering themselves in the employment
exchanges in the country, a major share of who are educated. Though, not all ed-
ucated job seekers register themselves with the employment exchanges, the figures
give a fairly good picture of the educated jobseekers, given the fact that out of the
total number of vacancies notified during 2010 (0.71 million) around 72% (0.51
million) were filled through employment exchanges.

As is evident from Fig. 5 amongst the educated job seekers it is the per-
centage of graduates that has witnessed greatest increase in the past few years.
This percentage has gone up from 17.85% in 2004 to 26.64% in 2008, registering
a 8.79% increase. Also the number of graduate and above in the workforce in-
creased from 23.6 million in 2001 to 33.3 million in 2005 to a further of 50.5
million in 2010.
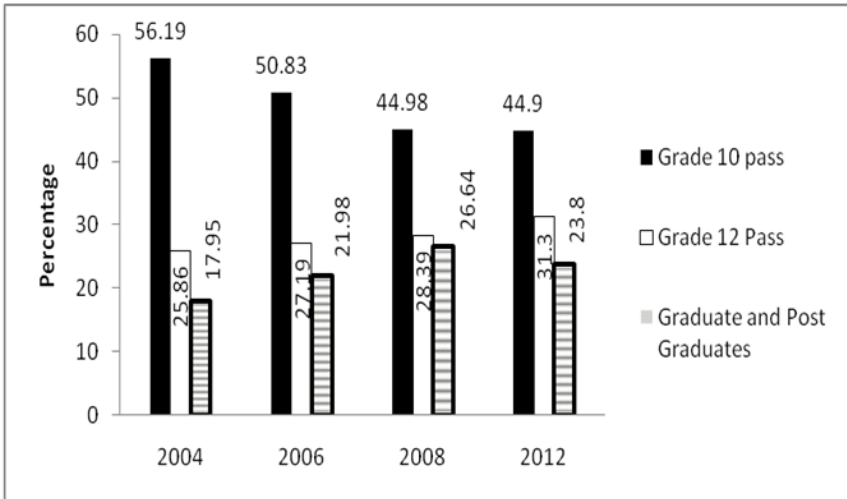
Figure 5: Educated Job seekers by Education Level. Source: Employment exchange statistics, DGET (GoI) (respective years)

While 10th grade pass still comprise the major chunk of educated jobseekers, their percentage is falling with each passing year. This increase can be explained by two facts, one rising graduate population in the country and two better quality of employment for those with higher education degrees. Studies across globe have proved that income elasticity of HE is much higher than all other levels of education (World Bank 2002; Varghese 2012). The type of work that HE graduates are engaged in reveals one distinguishable positive feature. Almost 50% are regular workers closely followed by self-employment. Only a very small percentage (less than five) are casual workers (Khare 2014).

5.3   Educated Job Seekers by Major Disciplines

A break-up of graduate job seekers by streams of study reveal that majority are from general academic disciplines with Arts graduates topping the list comprising about 40% of the graduate job seekers (Khare 2014). Also, last few years have hardly seen any change in their percentage shares by major disciplines. Only a marginal dip is observed in the percentage share of science, engineering, veterinary and education graduate job seekers. This is indicative of the fact that it is comparatively easier for engineering and science graduates to get employed may be for the simple reason that industries and occupations related to engineering and

science have been amongst the top five on employment index across major regions of the world. It can be seen that there is a heavy congregation of industries like IT/ITES, Health and community services, environment, Architecture, Bio tech, life sciences, Pharmacy, Ago-based and allied in the top growth group across all major regions of the world, all of which draw from the graduate pool of science and technology. In addition these graduates are also employed in large numbers even in non-engineering occupations and industries (Khare 2014).

5.4   Skills Challenge of Higher Education Graduates

Of the 500 million to be skilled by 2020 in India 25% is at the college plus level which translates to 125 million in figures (IMaCS 2008). Educating and skilling this huge mass in new knowledge and skill domains would be a huge challenge for the Indian higher education sector. The Planning Commission has identified twenty high growth sectors expected to provide employment to the burgeoning labour force in the coming years. These are Auto and Auto, Building and Construction Materials, Building and Construction, Real Estate Services, Electronics and IT Hardware, Education and Skill Development Services, Food Processing, Gems and Jewellery, Healthcare, Textiles, Leather and Leather Goods, Organised Retail, Tourism and Hospitality, Transportation and Logistics, Media and Entertainment, BFSI, Chemicals and Pharmaceuticals, Furniture and Furnishings, IT and ITES. Out of these, currently in India, graduate workforce is concentrated in limited sectors. After the IT/ITES where the percentage of graduate workers is much higher than one half closely followed by financing services, no other sector is employing a sizeable proportion of graduate workers except for community and personal services, power, trade and hotel. Education sector, which has quite a high share of graduate and above employee, has been kept out of this comparison (Figure 6).
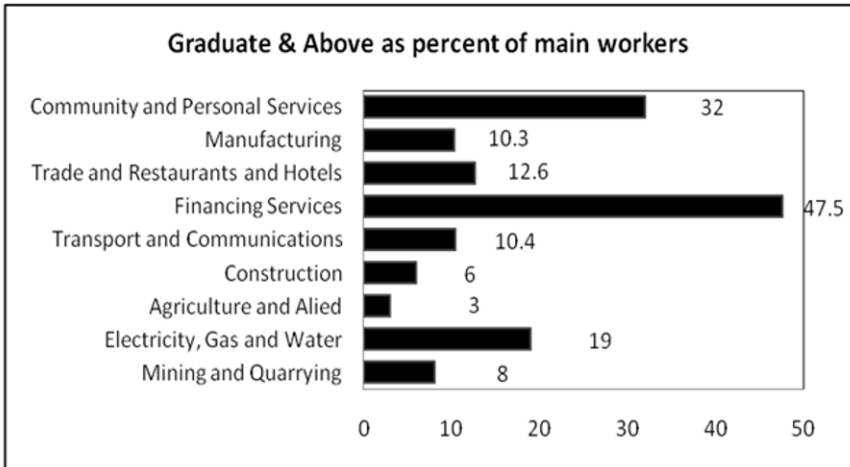
Figure 6: Sector wise Share of Higher Education graduate plus Workers. Source: Khare (2012)

Low percentage of graduate and above workers in certain sectors is self-explanatory for they may require skilled but not highly educated workers. These include Agriculture and allied, Transport and construction. A low percentage of only 10% graduate and above workers in manufacturing can be explained by way of a sizeable share of House Hold Industries (HHI) in Indian Manufacturing. Out of a total of 41.6 million, 16.9 million fall in the HHI category.

An industry wise breaks up of just the incremental human resource requirement till 2022 in India. IMaCS, *National Skill Development Corporation (NSDC)*) shows that Auto and Auto component, building and Construction, textiles and clothing, transport and logistics, organised retail, real estate and healthcare are going to be on the higher end of the spectrum adding up to a total of 155.9 million additional jobs. Most of these sectors currently employ very low percentage of graduates as main workers. But, as per a recent report on hiring intentions for graduates in India, (Graduate Development Service Newsletter 2012) though manufacturing, insurance and chemical segments will have strongest hiring intentions but technical and engineering functions will have the greatest headcount increase. The most sought after jobs will be in sales, engineering, and research and development functions at the junior-management level. Thus, even if demand in the traditionally robust sectors in India as per past trends, namely BFSI, IT and ITES, Electronics is going to be lower in no way will it undermine the importance of these sectors, for if not locally, additional demand would be generated globally as most developed countries are fearing acute shortage of engineers

and professional technicians. Skilled trades positions are currently the most diffi-cult to fill in Europe, the Middle East and Africa (EMEA). While employers in America find engineering posts the hardest to fill, those in Asia Pacific term them to be sales representative (Talent Shortage Survey Research Results Manpower 2012).

Any attempts at making the transition of the HE graduates to these trades easier and smoother would require to keep these macroeconomic employment pro-jections in mind. It is only of lately that attempts to capture these trends and de-veloping occupational skills classification has been undertaken. But, for the uni-versity and college systems to gear themselves to this kind of teaching and training may take a longer time for two major reasons – convincing as well as training the teaching faculty for this educational transition.

6   Education to Work Transition in India

A brief profile of the Indian HE system would in itself throw light on the sector's preparedness for producing job ready graduates.

6.1   Education System in India

India has one of the largest education systems in the world by numbers. Histori-cally it has been a three phased segmented system of General (academic) educa-tion, Technical and professional education and vocational education in the coun-try. The General academic education comprises of Arts, Science, Commerce, Hu-manities and Social Sciences; Technical Education consists of courses and pro-grammes in engineering, technology, management, architecture, town planning, pharmacy and applied arts and crafts, hotel management and catering technology and vocational education comprises of vocational courses offered at secondary school and HE level largely by way of certificate and diploma programmes by the Ministry of Labour and Employment (MoLE) as well as few other ministries and stand-alone institutions of the Ministry of Human Resource Development (MHRD). The role of university sector in imparting vocational education and training is very miniscule. Therefore, it is the last two segments which traditionally worked with the objective of preparing students for the world of work, while the first system is generally oriented towards preparing individuals with humanistic and social values. The main objective of the technical and professional education system is to prepare qualified manpower for the organised manufacturing and that

of vocational education is to prepare trained workers for the lower end organised/unorganised sector jobs.

The present education system in India mainly comprises of primary education, secondary education, Higher/senior secondary education and HE. Elementary education consists of eight years of education. Each of secondary and senior secondary education consists of two years of education (see chapter 3). HE in India starts after passing the higher secondary education or the 12th standard. Depending on the stream, HE graduation in India can take three to five years (three for academic programmes, four for engineering and five for medical). Post graduate courses are generally of two to three years of duration. Post-graduation, pre-doctoral, and doctoral programmes as well as research opportunities exist in a wide range of subjects in various educational institutes. In the past two decades there has been a massive expansion as well as diversification of the Indian Higher education system (see chapter 1).

6.2   Higher Education System in India

Under the overall ambit of the MHRD the higher education institutions in the country can be classified under the following major types – University (Central, State, Private Deemed, Open), Colleges and Stand-Alone Institutions. The number of Universities has increased 34 times from 20 in 1950 to 677 in 2014 and that of colleges 74 times with just 500 in 1950 to 37,204, as on 31st March, 2013 (MHRD 2013). As per the All India Higher Education Survey (AIHES) 2011-12 there are an additional 11,126 Stand Alone Institutions in the country. The current status of various types of universities is depicted in Table 2.

Type of University	Number	% share
Central Open University	1	0.2
Central University	42	7
Government Deemed University	38	6
Institution Established Under State	5	1
Institution of National Importance	59	9
Private Deemed University	79	12
Private University	105	16
State Open University	13	2
State University	286	45
Govt. added Deemed University	11	2
Other	3	0.5
TOTAL	642	100

Table 2: Type wise details of Universities. Source: AISHE (2011-12)

Although, most universities are under public domain, private universities are fast increasing. In fact, private sector growth trends are more dominant in the case of colleges affiliated to public universities. All private universities are only non-af-filiating unitary in nature. Of the 642 universities, 195 Universities are privately managed and 232 are located in rural areas. Eight Universities are exclusively for women. An all women Technical university was opened in 2012 at the national capital. Few universities are of unitary types with single or multiple campuses, domestic and overseas extension centres, but more are of affiliating type. The colleges may be Government or private aided or unaided as well as Autonomous. Most universities and colleges offer programmes in multiple disciplines under three major faculties of Arts, Science and Commerce. Specialised universities and colleges offering single discipline programmes like engineering/Technology, management, Agriculture, Law, Medical, language, pharmacy, Performing arts, Design etc. also co-exist. There are 88 Technical, 50 Agriculture and Allied, 29 Medical and 18 Law Universities (AISHE 2011-12).

The Table 3 shows the major categories of HE institutions in the country – the three broad categories being Industrial Training Institutes (ITI), University sector with affiliated colleges and Stand Alone Institutions of National Importance.

1. ITI (Boards of Apprenticeship Training-BOAT)	NITs
2a. Central Universities	AIIMS
2b. Public Sector Universities	National Institutes of Planning and Architecture
2c. Private Universities	NITTTRs
3. Institutions of National Importance (stand Alone)	Planning
IIMs	Sanskrit and Vedic Institutions
IISc. Bangalore & IISERs	UNESCO
IITs	Institutions related to Hindi and other Indian Languages
IIITs	others

Table 3: Categories of the institutions. Source: Compiled by author from UGC website (2015)

With the aim to reach out to the masses in an economical and faster manner, an-other, new feature is the emergence of distance education Higher Education Institutes in recent times. In 2005, there were 12 open universities (including the Indira Gandhi National Open University – [IGNOU)]) and 106 dual mode university distance education institutes / centres in the country, catering to over 2.8 million students. Today, the numbers have increased to 14, 182, and 3 million respectively.

In addition to one Central and 13 State Open Universities, there are 108 Dual mode Universities, which offer education through distance mode.

Entry of Foreign education providers is a relatively recent phenomenon but mostly by way of twinning arrangements and programme –based collaborations with hardly any offshore or branch campuses. In 2005 there were around 131 such foreign education providers offering mostly vocational or technical programmes. These were mainly from the USA or the UK but none from the top bracket of universities in these countries (Bhushan 2006). The size of this sector though still small and elitist is all poised to increase fast with the passage of the long awaited foreign education bill.

Many of the new universities and colleges particularly in the private sector run job oriented courses. Single discipline professional universities and colleges, twinning arrangements with foreign universities etc. have come up both in public and private domain but more in the latter.

ITI (BOAT): These institutes are running under the overall purview of the MoLE and are categorised as Vocational Training Institutes. Vocational education normally refers to vocational programs at school and higher education level, while vocational training refers to trade/craft education.

The training and education under various schemes and programmes here are open not only to school graduates ranging from class V to class XII but few schemes are available to HE graduates also. Three important schemes to be mentioned here are the Craftsmanship Training Scheme (CTS), Apprenticeship Training Scheme (ATS) and the SIDBI Training of Graduate and Diploma Engineers as 'Graduate' and 'Technician' Apprentices and also of the 10+2 vocational stream graduates / students as 'Technician (Vocational)' Apprentices is provided (see chapter 4).

Stand Alone Institutions: These fall under two categories those offering degree equivalent diploma programmes and the ones offering degree programs. Table 4 provides a list of the ones awarding both undergraduates, postgraduate as well as Ph.D. degrees as also Post Graduate Diplomas considered equivalent to post graduate degree.

Name of the Institute	number
Indian Institute of Technology (IITs)	16
Indian Institute of Information Technology (IIITs)	4 Govt. + 16 (PPP)*
Indian Institute of Management (IIMs)	13
Indian Institute of Science (IISc)	1
Indian Institute of Science Education and Research (IISERs)	5
National Institute of Technology (NITs)	30
Indian Institute of Information Technology and Management (IIITMs)	4
National Institute of Technical Teacher's Training & Research (NITTTRs)	4
All India Institute of Medical Sciences (AIIMS)	7
Others (SPA, ISMU, NERIST, SLIET, NITIE & NIFFT, CIT)	9
Total	**82**

* MHRD as on 05/06/2015
** MHRD as on 23/04/2015

Table 4: Major Stand Alone degree awarding institutes. Source: MHRD (2015)

In addition there are few others offering highly specialised education in special disciplines. To name a few Indian Statistical Institutes, Rajiv Gandhi National Institute of Youth Development, Academy of Scientific and Innovative Research, Tamil Nadu, Dakshina Bharat Hindi Prachar Sabha all of which fall under one or the other types mentioned in Table 4.

The Stand Alone Institutions offering mainly diploma programmes which are largely market oriented with a view to give the students a comparative advantage in the job market are another important category when it comes to imparting work relevant education. Most of the Stand Alone Institutions 78.7% are privately run. 68.3% are private unaided and only 10.4% are private aided. Only 21.3% are Government run. 55% are in rural areas. As is revealed by the table, the teacher training institutes top the list followed by the technical training institutes i.e. polytechnics.

Polytechnic education: Most of the polytechnics offer three year generalized diploma courses after Class X in conventional engineering disciplines such as Civil, Electrical and Mechanical Engineering. But, keeping in line with a more specialised and diversified labour market they have started offering courses in other disciplines such as Electronics, Computer Science, Medical Lab technology, Hospital Engineering, Architectural Assistantship etc. post 1990. In addition to these there are many single technology institutions that offer diploma programmes in non-engineering areas like Leather Technology, Sugar Technology, and Printing Technology etc. also exclusively for women in Women's Polytechnics such as Garment Technology, Beauty Culture and Textile Design. Polytechnics are meant

to provide skills after class X and the duration of diploma programmes is 3 years, which means, the trainee becomes employable at the age of 19 years. Some Polytechnics also offer post diploma and advanced diploma programmes of one to two years duration in different specializations. The aim of the polytechnic education is to create a pool of skill based manpower to support shop floor and field operations as a middle level link between technicians and engineers. Few studies have shown that these diploma holders are preferred by small and medium Industry for their special skills in reading and interpreting drawings, estimating, costing and billing, supervision, measurement, testing, repair, maintenance etc. (Goel 2009).

However, here too the anomaly is that the ratio of degree to diploma holders is around 2:1 as against the ideal 1:3. Two major reasons behind this unwarranted imbalance is the societal perception that degrees command a premium in the job market rather than diplomas, along with the stigma attached to a diploma vis-à-vis an engineering degree. The problems of quality and relevance as in the ITI sector also plagued the Polytechnic education in the country so that they started deteriorating and stopped attracting youth talent.

Another important type of work specific education that started growing by leaps and bounds in recent past is *Teacher education* (see chapter 9). This type of education is specially imparted to train Elementary teachers (Diploma in Teacher Education or a Primary Teacher Certificate, P.T.C.) post class XII; Secondary teachers (one year Bachelor's degree in Education – B. Ed. or Bachelor of Teaching) post undergraduate degree or four year integrated programme; upper secondary teachers (M. Ed i.e. master's degree in their area of teaching specialization). The NCTE is the regulatory authority concerning all matters related to teacher education, including quality, content and evaluation.

One thing that needs a special mention regarding the Stand alone Institutions is the fact that maximum of them (more than 50%) are offering only engineering and technology related education followed by Management education. Here, too quality is a major problem in mostly the diploma awarding institutions. While amongst the degree awarding ones many are top brand globally recognised. These include few IITs, IIMs, IIITs, NITs, AIIMs, IISc etc.

6.3   Trends in Higher Education Growth

Massification: Massification in terms of both number of institutes and enrolments, (Varghese 2014; Khare 2012, 2014; Agarwal 2010) privatization and professionalization (Khare 2012, 2014; Agarwal 2010) have been three well-recognised trends in Indian HE in the past few years. Under the on-going 12th Five Year plan (2012-2017) the proposition is to expand the higher education sector in all its

modes of delivery to increase the Gross Enrolment Ratio (GER) in HE to 21% by the end XII Plan and 30% by the year 2020.

Although, post liberalisation the professional education sector has been growing fast yet there still is heavy concentration of students in the general academic sector. Vocational education sector has been the least in demand for a variety of reasons stated in the previous sections.

Enrolment by major disciplines reveal that about 80% students are enrolled in undergraduate level programme and less than 0.5%, are enrolled in Ph.D. programmes. Maximum numbers of Students are enrolled in B.A. programme followed by B.Com. and B.Sc. programmes. Only 15 programmes out of approximately 150 cover 83% of the total students enrolled in HE. At Undergraduate level the highest number (40%) of students is enrolled in Arts/Humanities/Social Sciences courses followed by Engineering and Technology (17%), Commerce (15%) and Science (12%) (AISHE 2011-12).

Professionalization: Growing professionalization of HE in recent decades is usually claimed as fallout of industry requirements. The growth trends in the HE being largely determined by the skill needs of a growing economy with greater emphasis on operational knowledge rather than scientific/academic knowledge as in other parts of the world.

YEAR	GENERAL	PROFESSIONAL	VOCATIONAL
2001-02	-0.71	19.08	11.96
2002-03	6.57	36.05	8.60
2003-04	5.95	8.62	-0.75
2004-05	5.67	16.97	1.26
2005-06	5.30	12.36	1.24
2006-07	5.01	12.38	3.69
2007-08	4.76	12.24	2.05
2008-09	4.54	12.05	2.17
2009-10	4.33	11.78	2.20
2010-11	4.14	11.65	2.22
2011-12	3.98	11.39	2.25

Table 5: Annual Growth in enrolments by type of education. Source: Khare (2014)

As is evident from the table 5 the growth in general academic enrolments has remained even less than half that of the growth in enrolment for professional courses through the entire decade; the growth in the vocational courses being much lesser.

The distribution of students, across various faculties, clearly reveals concentration of students in Arts Faculty followed by science, commerce/management. In fact, in the year 2012 13,74% of the total enrolment had been in the three faculties of Arts, Sciences and Commerce / Management while the remaining 26.70% had been in the professional faculties, Engineering/Technology recording

the highest (16.05%), followed by Medical courses (3.52%), etc.(UGC annual report 2012-13). Thus, although there may be a wide variety of institutions offering job oriented, specialised courses but they are not for the majority because of being limited in number with more being fee charging private institutions, merit based standard admissions tests, higher fee structure. The limited size of this sector as revealed by the ratio of professional to non-professional enrolment (1:3) certainly demands a relook at a policy level change to rationalise and reduce this disparity and need to focus on Vocationalisation of education (UGC Annual Report 2012-13).

All the more, even though there has been rapid professionalization of HE this has been skewed in favour of just engineering technology and management programmes (Khare 2014).

This skewed growth of the HE has serious ramifications for the job potential of the graduates coming out of various disciplines. The first three places in enrolment is occupied by Arts, Science and Commerce as also in terms of jobseekers. Since they form the major chunk of graduate enrolments they also constitute the major chunk of job seekers. But, more important is to note the mismatch between these percentages in engineering/ technology and education streams. Though the percentage share of engineering enrolment is high their share in jobseekers is low. In contrast to this though the share of student enrolment in education stream is pretty low but its share in the jobseekers is much higher. This shows that while engineering and technical graduates are able to find jobs more easily, many directly through campus placements, even the small percentage of graduates in certain other streams are unable to do so (Khare 2014).

The growing popularity of engineering courses is thus, in no way surprising. Medicine and veterinary sciences is fast catching up but Arts, science and even commerce and management enrolments could not grow at half the pace of engineering technology. A look at five yearly growths of enrolments between 2006-07 to 2010-11 speaks volumes on this disparity (figure 6).
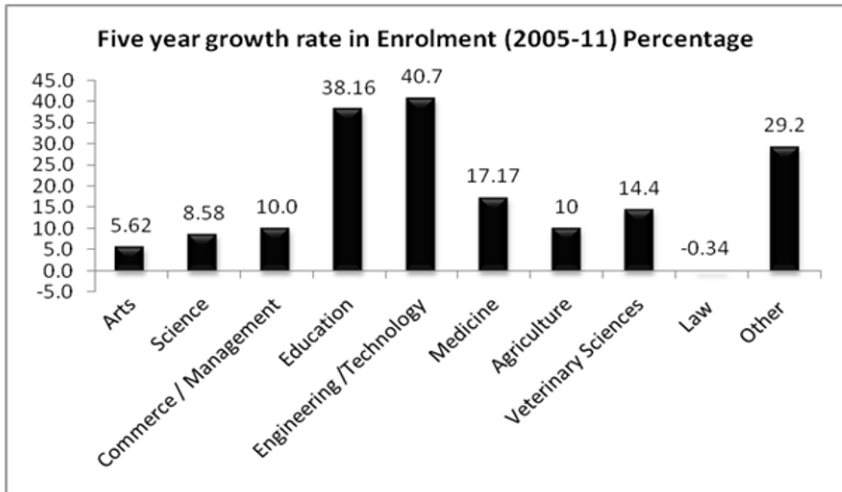
Figure 7: Growth in enrolments by major disciplines. Source: Authors' calculations (based on UGC Reports 2005-06 and 2010-11)

Such trends in India match with experiences elsewhere in the world. Carnoy (1987) in his study showed that the graduates from the arts faculty had the highest unemployment rate, followed by science and commerce. Compared to this, students graduating in education, engineering, law, or medicine had better employment prospects. Another, undesirable observation made by him is that such students with professional qualifications were often from higher socio-economic background.

However, recent years in India have seen some change of course with few non-traditional disciplines like Music/Fine Arts, Library Science, Physical Education, Journalism, Social Work, and Travel and Tourisms, etc. clubbed under others witnessing remarkable growth in enrolments. This is reflective of the changing mind set of the society at large and the youth in particular. The youth today have become more enterprising and open and are ready to experiment with new job spheres. They take bold decisions to follow their hearts and aptitudes in choosing their lines of study followed by careers. Yet another stream of study that has caught the fancy of our young learners is education as evidenced by the high rate of growth of student enrolments in education stream. This sudden popularity in education discipline may be explained by way of growing number of educational institutions requiring huge mass of school/college and university teachers and other non-teaching educational professionals.

Privatisation: Increasing participation of private sector in offering such professional and vocational courses as an easier and faster recourse to profiteering by claiming to plug the demand supply gap of ready to work graduates is also a concern. Not that Government has made any efforts in this direction (see chapter 8). A scheme of Vocationalisation of education at the university / college level was started in the mid-nineties and made more flexible and elaborate in the year 2003-04. The idea was to allow the students to pursue utility oriented certificate / diploma courses along with their regular study programmes. A large number of universities and colleges, since then, have received assistance under this scheme particularly in the last two decades but the quality of delivery of vocational programmes has by and large been poor with very little industry linkage.

Additional on campus support: In addition to these job specific specialised education attempts were made at the university and college levels to provide some additional support by way of opening Cells for Career counselling and guidance, equal opportunity cells, special schemes, remedial classes etc. for the minority, women and other underprivileged groups in order to provide them guidance and training in English communication, computer skills as well as preparation for entrance tests to higher levels of education/research and Government jobs. Career and Counselling Cell in Colleges and Coaching Classes for entry in services for SC/ST/OBC (non-creamy layer) and minorities need a special mention here. The schemes were formulated to address the diverse socio-economic challenges and geographic backgrounds of the heterogeneous population of students coming to the Colleges vis-a-vis equity of access and placement opportunities through availability of appropriate institutional support information. The coaching scheme aims to prepare students belonging to SC/ST/OBC (non-creamy layer) and Minority communities to get gainful employment in Group 'A', 'B' or 'C' Central services, State services or equivalent positions in the private sector. It is therefore required that the coaching under the scheme should be oriented for particular examinations conducted for selection to services, such as the IAS, State Public Services, Bank recruitment, etc. and may be crafted around specific requirements of a particular competitive examination. There was also a proposition that colleges may develop an Employment Information Cell for providing information about various competitive examinations in the area of its operation (UGC 11th Plan guidelines, UGC Annual Report 2012-13).

Unfortunately, the implementation of these schemes too remained just a routine business with little interest of faculty in charge or other resource persons inside and outside the institutions to contribute genuinely and effectively in these activities because of poor remunerations attached. Non-serious and conventional system of providing information or training in a routine repetitive manner year after year made even the students wary of taking benefit of such schemes. In the

absence of active guidance and use of modern methods including information technology to quickly retrieve and circulate information details for the benefit of all concerned, these cells became almost non-functional. In contrast, the private institutions, at least the good and reputed ones spend a lot of time and energy in maintaining the Placement cells for pre preparation and on-campus recruitment of students.

HE Reforms: Some changes were also made by way of curricular and examination reforms. Most universities adopted semester system, CCE (comprising internal and external assessment – mostly internal assessment based on attendance, ex-curricular participation, assignments and presentations, group work etc.) some compulsory courses on general, value based subjects like environment science, foundation courses, English language were made compulsory at the UG level.

Off campus Training: In addition to a university degree the students are in parallel approaching different types of training /educational institutions to augment their employability. Also there is an increasing awareness and attempt to provide such support on-campus by various public and private higher education universities and colleges. A broad classification of these institutions to support the above framework is given below (Box No. 1).
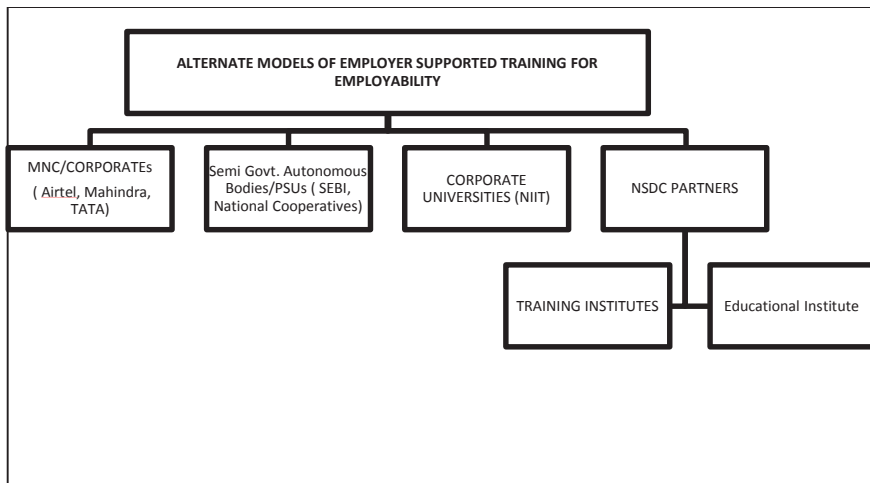
Box 1: Off Campus Training and Employer Supported Institutions (Compiled by author)

7   New Initiatives – Rejuvenation and Vocationalisation of Higher Education

Learning from past experiences and from good practices around the world recent years in India have seen not just a renewed emphasis on Vocationalisation of HE but a complete policy shift of making HE responsive to the labour market needs. While some piecemeal efforts were being made by various regulatory authorities like UGC, AICTE etc. in this direction from the decade of eighties but a well-structured approach to integrating skill delivery with formal education system made its presence felt only in 2009 with the formulation of the National Skills Policy in the country.

7.1   *Skills Drive in India – National Skills Policy*

With the aim to Enhancing Skills to Reap Demographic Dividend a comprehensive National Skill Development Mission was created during the Eleventh Five Year Plan and an all-encompassing comprehensive and inclusive Skills Policy was launched in 2009. As a result, a three-tier Institutional Structure consisting of (i) PMs National Council (ii) National Skill Development Coordination Board (NSDCB), (iii) NSDC has been put in place. The policy aims to enable effective coordination between different ministries, the Centre and the States and public and private providers for creating institutional mechanism for research, development, quality assurance, examination and certification, affiliation and accreditation and coordination of skill development across the country. The Policy has in its gambit to promote institution-based skill development including ITI/ technical and vocational institutions/ polytechnics/ professional colleges.

Sector specific Skills Councils have been created for each of the 20 high growth sectors identified by the GoI. The NSDC has geared to train youth with or without degrees through variety of activities via PPP mode of Financing Skill Development. The education sector has been revamped to implement the newly designed National Vocational Educational qualifications Framework – NVEQF to be operationalised as per the National Occupational Standards (NOS). The new framework provides for seamless movement from vocational to university education starting with level 1 certification from grade IX to University education. Moving from level 1 to level 7 the new framework ends with a Bachelor's degree (college undergraduate at the 7th level). Beyond these levels 8, 9 and 10 refer to post graduate and doctoral degrees.

Multiple Pathways have been created for exit and entry at different levels to allow for movement from education to work and vice versa (vertical mobility)

as also between vocational and academic education (horizontal mobility. The new framework also allows for Recognition of Prior Learning (RPL) by family and other informal routes. With assessment of prior learning a candidate can progress towards a community skill Diploma in a community college / Polytechnic in a special flexible curriculum as determined by UGC and AICTE from time to time.

Driving other stakeholders: The private sector too has stepped up to join the skilling brigade by entering into collaborations with universities/colleges or by way of taking their own initiatives a large number of industries/corporations/MSME have entered into partnership with NSDC (see chapter 7 and 8).

Building a continuum for skill delivery: A 'sector wide approach' and shift in focus from quantity to quality is clearly visible in all recent Government documents at all levels of education. Also measures have been taken to address the issue of employability skills by investing in infrastructural development, teacher training, faculty and curriculum development. Specific efforts have been made to integrate elements of skills delivery right from elementary to higher level of education. Emphasis on developing basic and life skills – basic numeracy and language, value based education, financial literacy at elementary level; renewed impetus to large scale Vocationalisation at secondary level; expansion of technical and vocational education, rejuvenation of huge network of existing universities are all geared towards making the transition from education to work easier and smoother.

7.2   Ministry of Human Resource Development Initiatives

There is now a renewed emphasis on Vocationalisation of education including HE. The vocational space would be deepened and widened in years to come.

Catching them young: Not only quantitative expansion of vocational education capacity but bringing it progressively downwards to lower classes. The NVEQF allows for a shift from two-year stream (classes XI and XII) to a four year stream that begins at Class IX thus facilitating to captures ninth class drop outs. It is also proposed that later vocational education can commence from class seven onwards. At the lower school level the emphasis would be given to impart generic soft skills that fall under the category of functional skills for getting employment viz. English language skills, quantitative skills, computer literacy, spread sheet, word processing, computer graphics, presentation skills, behavioural and interpersonal skills etc.

Boost to HE Vocationalisation: The two apex level regulatory authorities of general academic and professional technical education have initiated schemes and strengthened the existing ones to incorporated elements to skill delivery under

the new NSQF. The Scheme of Career Orientation to Education/ Career Oriented Programme/ Career Oriented Courses in Universities and Colleges that was started with the aim to provide knowledge, skills and aptitude for gainful employment in wage sector in general, and self-employment in particular to undergraduate pass-outs so as to reduce the pressure on institutions of higher learning for Master's Degree programmes and research just as a time pass activity has been expanded and redesigned to include more credits for practical training. These courses run parallel to the conventional B.A., B.Com. and B.Sc. degree and are inter-disciplinary in nature. The students shall have the freedom to diversify into various fields, not necessarily related with their core discipline e.g. a science student could side by side pursue a course in Event Management, and student of Arts background have the option to pursue a course in Science Journalism, etc. (UGC Annual report 2012-13). During the XII Plan, 793 courses have been approved for the next five years to 522 institutions (516 colleges and six universities) for introduction of Career Oriented Courses.

The scheme of Community Colleges (CC) and Bachelor of Vocation (B. Voc.) as well as KAUSHAL Kendras launched by UGC/ AICTE need a special mention here. With the aim to develop a synergistic relationship between Community, CC and Job market UGC and AICTE (2012-13) have approved CC to offer

> *"low cost high quality education locally, that encompasses both traditional skill development as well as traditional coursework, thereby providing opportunities to the learners to move directly to employment sector or to move to higher education sector. It offers a flexible and open education system which also caters to community based life-long learning needs." (UGC 2012-17)*

Allowing for certification at various levels of NSQF the courses offered should have a knowledge-skill mix and their duration be determined by the local industry needs (see chapter 13). The target group here are the students currently pursuing HE, but actually interested in entering the workforce at the earliest opportunity. The scheme would be of advantage to the higher Secondary School pass-outs not willing to join existing higher education system and also for the ones who wish to up-grade and certify their traditional/ acquired skills irrespective of their age or education. A minimal scholarship is available to the students. In order to ensure a local connect, those universities/colleges would be preferred to host CC which have proximity to local industry partners. A similar attempt has been made by AICTE too for opening CC offering engineering/ technical courses in engineering colleges. Financial assistance up to a maximum limit of 5.0 million per CC per year may be provided by UGC for guest faculty, training/ capacity building/ skill

upgradation, curriculum development, basic infrastructure creation including laboratory, workshop facilities, consumables and learner scholarships.

UGC has also proposed to establish as many as 100 'Deen Dayal Upadhyay Centres for Knowledge Acquisition and Upgradation of Skilled Human Abilities and Livelihood' (KAUSHAL) during the XII Plan period. The centres would allow for vocational education in a pyramidical structure starting from a minimum of Diploma to Advanced Diploma, B. Voc. and further studies at Post Graduate and Research level. The purpose is to provide threefold services focusing on skills for employability, developing entrepreneurship traits and acting as Centres of Excellence through critical innovative research for skill development in specialised areas.

These centres will also act as inter-university, inter-sectoral university-industry, HE system and industrial sector coordination facilitators. Under both these schemes the purpose is to enable students to pursue a bachelor's degree (B. Voc.) as part of college/university education, allowing for multiple exits such as Diploma/Advanced Diploma under the NSQF along with broad based general education. The course would be so designed as to also incorporate specific job roles and their NOSs. The course curriculum would have a greater component to skill based vocational education (60%) and a lesser (40%) component of general education and 60% in a credit based semester system (Table 7).

The whole idea is based on the premise that it is important to embed the competencies required for specific job roles in the higher education system for creating employable graduates.

Level	Course Name	Duration of The Programme
NSQF Level -4	Certificate	6 Months (30 Credits)
NSQF Level -5	Diploma	1 Year (60 Credits)
NSQF Level-6	Advanced Diploma	2 Years (120 Credits)
NSQF Level-7	B.Voc Degree	3 Years (180 Credits)

Table 6: Scheme of Community Colleges and Bachelor Vocation (B. Voc) Degree Programme. Source: Structure of Community College/ B. Voc. Course UGC, New Delhi (2012-17)

Although the institutions have been provided complete autonomy in identifying the courses to be offered but some indicative courses have been proposed by UGC by way of common guidelines (Box No. 2).

Science Stream: Information and Computer technology, Refrigeration, Biotechnology, Hospital waste Disposal Management and Sericulture etc.
Social Sciences and Humanities Streams: the courses could be of inter –disciplinary nature viz. applied Sociology, Applied Psychology, Tourism, Fashion Designing, Translation Proficiency, Television and Video Production.
Commerce Stream: Insurance, Banking, e-Commerce world, Trade, Foreign Exchange Trade, Retailing etc.

Box 2: B. Voc Indicative Courses (Streams wise)

7.3   Public Private Partnerships (PPP)

While experiments in PPP mode more prominent in the training sector, the concept is fast picking up in the HE sector. The GoI envisages greater role of private partners through PPP in the current 12th FYP through teacher education, use of ICT in education, TVET, international collaborations in research and development. UGC the apex level regulatory authority in HE, has recommended four models of PPP in HE: I. Basic Infrastructure Model (Private sector provides infrastructure); II. Outsourcing Model (Govt. outsources establishment and management); III. Equity/ Hybrid Model (both share infrastructure investment); IV. Reserve Outsourcing Model (Government invests in infrastructure and private partner manages). PPP in HE is thus all set to come up in a big way with 20 IIITs, 14 Innovation Universities, 300 Polytechnics planned to be set up under this mode.

7.4   Consolidation of Skills Delivery by Various Ministries

As stated in the earlier section there are more than 20 ministries that are involved in providing sector specific skills training by way of their own institutions via formal degree/ diploma programmes as well as non formal short term programmes. In addition to the MHRD and the Labour ministry that invest in the skill development via formal institutions many other ministries like the Ministry of Rural Development, Ministry of Micro, Small and Medium Enterprises, Ministry of Tourism and Culture, Ministry of Health and Family Planning, Ministry of agriculture and several others have their own establishments. While most training is meant for fresh job entrants some schemes are also open to college students. A consolidated list of such programmes offered to students by ministries including the MHRD. A new and separate Skills ministry has been created at the Centre recently to overlook and coordinate the entire Skills Action plan and to act as a link between all other ministry initiatives in this regard in order to plug in coordination gaps (see chapter 7).

7.5   *International Collaborations*

India is approaching the international community for collaborative ventures in the area of vocational education and skills training (US, UK, Germany, Australia) USAID partnership with the McKinsey Social Initiative (PPP) **'**Generation' to design and deliver pioneering solutions to train and employ millions of youth. Another programme specially meant for Indian University students is pioneered by Private Sector Exchanges in Education and Skills Development known as Exchange Visitor Program (EVP). Through this privately-funded program about 300 Indian university students and recent graduates are provided with internship opportunities in prestigious U.S. companies, institutions, and organisations every year.

8   Pathways from Education to Work

Transition from education to work starts earlier than the compulsory education stage till class VII when many drop outs move out of school as unskilled workers. Some drop out at secondary levels as semiskilled workers. Of those who move to vocational streams, find low end jobs with no scope for moving to higher levels of education – undergraduate, PG or research. It is only those with technical diploma from polytechnics that are allowed to move higher up to undergraduate degree in engineering. But, seats for this type of lateral entry are very few. The flow chart below depicts the pathways from education to work in the country existing until now for technical and vocational education.

8.1   *Silver Lining*

However, everything on the Indian HE landscape is not dark. Industries that are poised for higher growth in future are the ones that are higher on the employability index for Indian youth (see chapter 8). Given its demographic advantage, even a small percentage of India's engineering graduates places it at number two positions in the world, only after US, as per their absolute numbers. Though, the ivy league institutions in India cater to only 1% of the student population, yet all top companies or institutes in the world have Indian brains on their rolls at middle as well as high positions be it be it NASA, IBM, Microsoft, Intel, Bell, Sun, Harvard, MIT, Caltech, Cambridge or Oxford (Inclusion 2012) all of whom are not necessarily engineers. The IITians have made such a mark in the US that May 2005 was termed as The IIT – Indian American Heritage Month by the states of Virginia and Maryland. Prominent persons like Jack Welch of GE, Larry Summers, President

of Harvard University, and Tom Friedman, the globalization columnist of New York Times attended their alumni function in US. Similarly, Indian doctors have supported the British Medical Service for many decades. In recent years, India's high band research base has diversified from R&D, scientific research to financial and economic research to medical and biomedic research. Indian medical schools in New Delhi are often quoted to be the best in the world. Though many graduates and postgraduates from the Indian soil have further honed their skills in foreign universities/colleges before reaching heights in career ladder, it cannot be denied that their foreign upskilling was built on their Indian foundation. World's best companies like McKinsey & Co. and AT Kearney Inc., have J.P. Morgan, Moran Stanley, Deutsche Bank etc. have already started spreading their Research base in India *(*Business World 2005). The issue is now of scalability of high-end research facility and quality education. Efforts in this direction have already started with companies investing and promoting PhDs. More than 150 international firms have set up R&D centres in India and Indian companies have started increasing their research budgets and collaborating with higher educational institutions on a commercial basis for e.g. SPREAD – Sponsored Research and Development of the ICICI Technology Financing Group, Nirma Labs (India Today International 2005). There is unanimous acceptance amongst all stakeholders of the fact that quality needs to be monitored in a more stringent manner.

9   Conclusion

Thus in recent years the skills landscape in India has widened but with interrelations with formal education system. Under the overall purview of the National Skills Ministry and policy with NSDC support educational institutions have geared themselves to join hands with other stakeholders in the labour market as well as society at large to take a plunge in preparing our youth for the world of work.

Although, many new players and processes have emerged in response to the changing needs of the society, the job-oriented education in India is very limited in size (available only to the elite and well off sections), space (urban centres and limited disciplines) as well as structure (curriculum, teaching learning methodology). The HE curriculum has remained more or less rigid and outdate in maximum institutions across majority disciplines. There exists high degree of resistance to change. Faculty is neither ready nor trained well to take up the additional responsibility of introducing effective job oriented courses, making meaningful industry academia linkages. Infrastructure has become obsolete or insufficient for making internationally competitive desirous changes. Academic and vocational, technical education remained distinct streams with very little scope of

either horizontal or vertical transitions across each other until recently. Massification of HE took place at the cost of quality such that employability of HE graduates is today one of the most talked after challenge.

Here too the proportions making to jobs of their choices/education levels or even getting one single job are very small. While only a small segment of HE graduates coming out of quality institutions are short in supply but high in demand thereby enjoying high wage premiums, a large body of highly educated graduates are found to be falling short of meeting employers expectations, thereby taking up jobs much below their educational qualifications or are forced into unsuccessful entrepreneurial pursuits. These are large in supply but least in demand. This has created a new kind of demand supply imbalance – *the double knife edged mismatch of over - skilling as well as under skilling of the HE graduates*. This has also forced the graduates to further supplement and complement their formal university degrees with other forms of skill based education thereby resulting in creation of new forms of post-secondary/ HEIs and degree provision.

Panchamukhi brought the problem of distorted job market/ education equilibrium to light as early as 1987 where he spoke of four such imbalances.

a) By way of greater unemployment among certain graduates, due to dualities of personal backgrounds (students from poor socio-economic and rural backgrounds); differentiated grading of universities and colleges (in large metropolitan areas being considered superior as they have additional advantages of a larger size of the employment market and more efficient means of integrating job seekers with the job market).

b) By way of devaluation of degrees in the job market due to over-expansion of HE or some of its branches. And such imbalances impacting students more from vulnerable backwards.

c) By way of lack of labour market connect some graduate employees may find that their education is regarded less or absolutely useless by employees.

d) In terms of a decline in educational efficiency by way of poor quality as an after-effect of over-expansion which in turn may induce employers to employ persons with still higher degrees and diplomas leading to further devaluation of HE

Unfortunately, all of the above seem to plague the Indian Higher Education system even today. The figures of unemployable graduates placed in earlier sections certainly point at lack of preparedness of the Students for work transition. A large number of studies in recent years also point at the gravity of the situation.

10   Challenges

The new initiatives of GoI have certainly created a roadmap to achieve its stupendous skilling targets but are beset with innumerable challenges beginning with changing the mind-set of the society towards vocational studies, teaching faculty towards the need for reorientation, creating awareness among the masses about the new frame of work. As of now the knowledge base of Indian society is very narrow compared to other parts of the world by way of low GER in HE and VE, high dropouts and low graduation rates. Interestingly, even now the perception of both trainees under the recent system and employers on value addition from vocational training is nothing very great (India Skills Report 2014). The report highlights that of the trained, the percentage that receive placements if less than 50%, many of whom are highly disillusioned from the type of job received and their salaries. So much so that 'trainee drop out' has been stated as a critical problem. The study shows that a third of the trainees who were offered jobs either did not accept the offer or quit within a month.

In order to achieve the skilling target, increasing the base manifold would itself be much more challenging a task than visualized for its sheer magnitude. Quality control of the huge skill network that India has rolled out would be no less daunting.

Challenges of inclusion and equity are another consideration to be taken seriously. Currently there is huge gender, social and regional disparities in HE participation by way of both access to quality education and certain subject domains. Female enrolment in many job oriented diploma/degree courses with better wage premiums and social prestige is still much lower. Ironically, employability is a much larger problem with the greater pool of student's enrolled in general academic programmes (arts, commerce) and lower end diploma courses (polytechnics). It is an urgent need to give special emphasis on skilling this vast potential employable educated pool. Innovative and low cost ways of doing so for the concentration of students from underprivileged sections in these subject domains is much larger as compared to the others and also they have weak family grooming and schooling foundation and also lack resources for investing in open market training provisions. Now that a vast chunk of training would be provided by for profit organisations under the PPP model, certain checks and balances to overcome this imbalance need to be put. Public provisioning of such facilities, on- campus pre placement preparation and training support and greater emphasis on orienting university/ college education towards imparting holistic development is more desirable in Indian situation.

The disconnect between the three major stakeholders of the education – workplace network i.e. the employers, education providers, and youth is a major

cause for the lack of knowing each other's desires and needs. The three live in parallel worlds with little or no scope for regular communication lest aside any engagement with each other. Employers hardly ever communicate with the education providers clearly stating any of their needs nor do the education providers engage in any kind of industry need assessment before starting a course or designing the curriculum. Living in silos they are least able to guide students in making the choice of their subjects and disciplines. Very few students have a good understanding and awareness regarding the disciplines that lead to professions with good job openings and wages. Whatever, little information they have is in an informal manner from family and friends. There is hardly any structures forum comprising of both the school and employer representation of informed decision making for students. A robust open resource LMIS, online employer counselling may help plug in these gaps.

In the light of an extremely dynamic labour market, fast changing technology, that constantly put new demands on employability, a more sustainable model of creating not just employable HE graduates but a sustainably employable HE graduates by way of constant re-skilling and up-skilling in order to sustaining them in the industry is by far the need of the hour for we just do not want another mass of educated, trained job drop-outs.

Knowledge and skills have both became a matter of cumulative demand by employers as well as the society at large. The new terminology that has gained popularity with the world comprises of a set of both cognitive and non-cognitive attributes and skills in a knowledge framework to be upgraded as and when required – the *'Sustainable Employability Skills'*. It is from here that the definition and understanding of the role of HE should take a new leap – from *'Education for the sake of Education'* to *'Education for better livelihood'* to *'Education for better living'*.

References

Agarwal, Y. P. (2010): INDIA: Rapid growth but misalignment. In: University World News. 6th June, Issue No. 127.

AICTE (2013-14): All India Council for Technical Education Approval Process and Handbook (vocational education and community college course(s) and SKP under NVEQF). New Delhi: AICTE.

All India Survey of Higher Education (AISHE) (2011-12): GoI, MHRD Department of Higher Education, 2014. New Delhi.

Barro, R. J. (1997): Determinants of Economic Growth. A cross-country Empirical Study. Cambridge: The MIT Press.

Barro, R. J. (2000): Education and Economic Growth. URL: http://www.oecd.org/dataoecd/5/49/1825455.pdf.

Becker, G. S. (1964): Human capital: A theoretical and empirical analysis, with special reference to education. New York: National Bureau of Economic Research.

Belt, V. and Richardson, R. (2005): Social labour, employability and social exclusion: pre-employment training for call centre work. In: Urban Studies. Vol. 42, No. 2, pp. 257–270.

Bhushan, S. (2006): Foreign Education Providers in India: Mapping the Extent and Regulation. London, UK: The Observatory on Borderless Higher Education.

Boston Consultancy Groups Study (2007): Employment and Skill Development. URL: planningcommission.nic.in/hackathon/Skill%20Development.pdf.

Bowers-Brown, T. and Harvey, L. (2004): Are there too many graduates in the UK? In: Industry and Higher Education. Vol. 18, No. 4.

Business World (2005): Business World. 31 October 2005, p. 24.

Chadha, G.K. (2004): Human capital base of the Indian Labour market: Identifying Worry Spots. In: The Indian Journal of Labour Economics. Vol. 47, No. 1, Jan-Mar.

Carnoy, M. (1987): Higher Education and graduate employment in India: A Summary of three case studies. IIEP Research Report No. 64. International Institute for Educational Planning. Paris.

De La Fuente, A. (2003): Human Capital and National Competitiveness: the State of the Evidence. URL: http://ec.europa.eu/employment social/news/2003/sep/fuente en.pdf.

DGET (various years): Ministry of Labour & Employment, Directorate General of Employment and Training: Various Employment Exchange Statistics. URL: http://www.dget.nic.in/content/innerpage/employment-exchange-statistics.php.

DGET (2011): Performance Evaluation of Industrial Training Institutes/Industrial Training Centres (ITIs/Private ITIs). Government of India, Ministry of Labour & Employment. New Delhi.

DGET (2012): Trade Apprenticeship Training in India (as on 31.12.2011). Under Apprenticeship Training Scheme. Government of India, Ministry of Labour & Employment. New Delhi.

DGET (2014): Schemes/Programs. Government of India, Ministry of Labour & Employment. New Delhi. URL: http://dget.nic.in.

Goel, V. P. (2009): Technical and vocational education and training (TVET) system in India for Sustainable Development. New Delhi.

Government of India (GoI) (2008): Eleventh Five Year Plan (2007–12), Social Sector, Volume 2. New Delhi.

GoI (2009): National Skill Development Policy. Ministry of Labour and Employment.

GoI (2013): Twelfth Five Year Plan (2012–2017) Social Sectors, Volume 3. New Delhi.

Graduate Development Service Newsletter (2012): India's Industry Trends Edition, May 2nd.

Hanushek, E. A. and Kimko, D. D. (2000): Schooling, labour force quality, and the growth of nations. In: American Economic Review. Vol. 90, No. 5 (December).

Hanushek, E. A. and Woessmann, L. (2007): The Role of Education Quality for Economic Growth. Policy Research Working Paper No. 4122. Washington, DC: World Bank.

ICRA Management Consulting Services Limited (IMaCS) reports (2008): Human Resource and Skill Gap Requirements (2022). Skill Gap Studies conducted for the National Skill Development Corporation (NSDC). URL: http://www.nsdcindia.org/knowledgebank/index.aspx.

India Skills Report (2014): Peoplestrong, CII and Weebox. The India Skills Report 2014. URL: https://wheebox.com/wheebox/resources/IndiaSkillsReport.pdf.

India Today International (2005): India Today International. 3rd Oct 2005.

Inclusion (2012): Alligning Skills with Jobs: URL: http://www.inclusion.in/index.php.

Kaul, S. (2006): Higher Education in India: Seizing the Opportunity. In: Working Paper, No. 179. URL: http://www.icrier.org/pdf/WP 179.pdf.

Khare, M. (2012): Aligning India's Higher Education to the employability needs of a Global Economy. Paper presented at the 18th (CCEM) Commonwealth Education Ministers Conference held in Mauritius University, Mauritius, August 27th – 30th.

Khare, M. (2014): Employment, Employability and Higher Education in India: The Missing Links. In: Higher Education for the Future. Vol. 1, No. 1, pp. 39–62.

Kingdon, G. and Soderbom, M. (2007): Education, Skills, and Labour Market Outcomes: Evidence from Ghana. Background paper. In: World Bank study "Linking Education Policy to Labour Market Outcomes." Washington, DC: World Bank Education Working Paper Series.

Krueger, A. B. and Lindahl, M. (2001): Education for Growth: Why and for Whom? In: Journal of Economic Literature. Vol. 39, No. 4, pp. 1101-1136.

Mathur, A. (1990): Human Capital, Spatial Disparities and Economic Development. In: Manpower Journal, Vol. 26, No. 3.

Mankiw, N. G., Romer, D. and Weil, D. N. (1992): A Contribution to the Empirics of Economic Growth. In: The Quarterly Journal of Economics. Vol. 107, No. 2, pp. 407-437.

Mehrotra, S., Gandhi, A. and Sahoo, B.K. (2013): Estimating India's Skill Gap on Realistic basis for 2022. In: Economic and Political Weekly. Vol. XLVIII, No. 13.

MHRD (2013): General Information. URL: http://mhrd.gov.in/university-and-higher-education.

MHRD (2015): General Information. URL: http://mhrd.gov.in/institutions.

NASSCOM (2005): Extending India's Leadership of the Global IT and BPO Industries. NASSCOM-Mckinsey Report 2005.

NSS 66th Round, Government of India (2013): Status of Education and Vocational Training in India. Ministry of Statistics and Programme Implementation. National Sample Survey Office.

Panchamukhi, P. R. (1987): Graduates and Job Markets. A Quantitative Study of two Universities in India IIEP. Occasional Paper No. 74.

Pricewaterhouse Coopers (PwC) (2012a): Private Limited India - Higher Education Sector Opportunities for Private Participation.

PwC (2012b): Taking Stock of Higher Education in India A sector wide scan. URL: www.pwc.in/en_IN/in/assets/pdfs/industries/education/publication/higher-education-report-nov-2012.pdf.

Schultz, T. W. (1961): Investment in Human Capital. In: American Economic Review. Vol. 51, No. 1 (March).

Sianesi, B. and Reenen, J. (2003): The returns to Education: Macroeconomics. URL: www1.worldbank.org/publicsector/pe/pfma07/sianesi.pdf.

Stevens, P. and Weale, M. (2003): Education and Economic Growth. National Institute of Economic and Social Research, London. URL: http://cee.lse.ac.uk/conference_papers/28_11_2003/martin_weale.pdf.

Talent Shortage Survey Research Results Manpower Group (2012): General Information. URL: www.manpowergroup.us.

The Robbins Report (1963): Higher Education Report of the Committee appointed by the Prime Minister under the Chairmanship of Lord Robbins. URL: http://www.educationengland.org.uk/documents/robbins/robbins1963.html.

The Times of India (ToI) (2012): ASCENT, 31st July.

University Grants Comission (UGC) (2006): Annual Report 2005-06. New Delhi.

UGC (2012): Annual Report 2010-11. New Delhi.

UGC (2013): Annual Report 2012-13. New Delhi.

UGC (2014): Annual Report 2013-14. New Delhi.

UGC (various years): Annual Report 2012-17. New Delhi.
URL: http://www.ugc.ac.in/pdfnews/7814407_UGC-Skilled-Based-Vocational-Course.pdf.

Unesco WCEFA Declaration (1990): UNESCO (1990) World Conference on Education for All (WCEFA). World Declaration on Education for All and Framework for Action to Meet Basic Learning Needs. UNESCO: Paris.

United Nations (UN) (2001): Recommendations of the High Level Panel of the Youth Employment Network. New York: United Nations.

Varghese, N.V. (2012): Society for Educational and Economic Development, Foundation Day Lecture-Seminar on higher Education reforms: Global Initiatives. National University of Educational Planning and Administration. Aug 09.

Varghese, N.V.(2014): Challenges of Massification of Higher Education in India. Paper presented in the International Seminar on Massification of Higher Education in Large Academic Systems, Nov 10-11, 2014 organised by CPRHE/NUEPA & British Council, New Delhi.

World Bank (2002): Constructing Knowledge societies: New Challenges for Tertiary education. Washington, D.C.

Other Official / Governmental Programmes: Government Initiatives for Preparing Youth for the World of Work

Ganapathy Palanithurai

1   Introduction

Vocational Education and Training (VET) is gaining currency among the policy makers as they visualize VET will help improving economy, employment, and income, increase productivity and reduce social tension and unrest in the present context (Gill et al. 2000). More specifically, it is being viewed as a strategy to achieve demographic dividend. Much of the debate, discourse and analysis in India is linked with meeting the requirements of industry and service sectors. But, much attention has not been given at the ground level for realistic action to translate the intention of the policy makers into reality. Purely it is seen as an economic exercise through an alternative paradigm of development (Virmani 2002) and from that perspective alone arguments have been developed at present and policy prescriptions are evolved. Countries like India have got another dimension which cannot be ignored. Skill education has to be linked with quality of life and quality of service and much work to be done at informal sector. The new economic policies of government of India contributed for the unprecedented economic growth (9.2% in Gross Domestic Product (GDP) in the year 2006-2007) and the success of Information Technology (IT) and Information Technology Enabled Services (ITES) in India provided visibility to the country at the world market. This contributed for the reduction in unemployment considerably. The expansion of market, rapid urbanization, growing significance secondary and tertiary sectors, influx of Foreign Direct Investment (FDI) generated the demand for skilled workforce. The shortage of skilled workforce is apparent in organised sector (Majumdar 2008). Only 5% of total workforce is India has any formal training and 80% of unemployment youth registered in employment exchange lack formal employable skills (NSSO 2004). At the same time, the contribution of GDP of the primary sector is reducing, leaving many depend of agriculture migrating to the urban areas in search of livelihoods. The migrating rural population mostly observed in the unorganised sectors in the urban areas.

　　　　NSSO 55th (1999-2000) (NSSO 2000) and NSSO 61st (2004-2005) (NSSO 2004b) Round Survey estimated number of informal sector workers in 2004-05 was 394.90 million in India contributing 86% of total workers. In the

context of extreme inequalities persisting in the Indian society, it is necessary to look at skill development initiatives from the perspective of quality of life and equality of opportunity.

It is estimated that the world is expected to encounter a shortage of 47 million working people by 2020, whereas India will have a surplus of 56 million working people (Government of India 2009). There are studies continuously estimating the skill development works to be carried out in India (Mehrotra et al. 2013). But the question is how India prepares itself to use this new opportunity. By skilling the workforce, the earning capacity of the workforce can be enhanced which ultimately changes the quality of life. Skill development is also considered as a tool to reduce poverty and improve quality of life. Having understood this potential of skill education, why the whole education process has not turned towards skill education in India is the daunting question since our education system produces more number of graduates (80%) from arts and science which ultimately resulted in occupying the jobs meant for skilled workers (Unni and Kani 2008). Against this background, an attempt is made in this paper to analyse the initiatives of the government to build the skills of the youth to prepare for the world of work through various schemes.

The government of India initiated National skill development mission to address the challenges posed by the growing Indian economy and to take the advantages of demographic dividend. The mission will address the existing gap in the skill development and the vocational education and take necessary measures to strengthen the skill development. The Skill development activities of the government have three-tier institutional structure consisting of (i) PM's National Council on skill development (ii) National Skill Development Coordination Board (NSDCB), (iii) National Skill Development Corporation (NSDC) (faster, sustainable and more inclusive growth, an approach to Twelfth Five Year Plan 2011). This structure is created in the year 2008. The Prime Minister's National Council on Skill Development acts as provider for policy advice and gives vision to skill 500 million population by 2020. NSDCB has taken upon itself the task of coordinating the skill development efforts of a large number of Central Ministries/Departments and States. As part of the policy, the Public Private Partnership (PPP) model of NSDC is established. The government of India skill development activities are implemented through NSDC through various partners. It is providing necessary financial resources to implement the skill development initiatives. The government established new and separate Ministry called Ministry of Skill Development and Entrepreneurship in the year 2014 (GoI 2014). Skill development was under the Ministry of Labour and Employment previously. Apart from that, government has taken various measures to address the skill development. The government brought 47 new employable trades with the duration of six months to two

years under Craftsman Training Scheme (CTS) in the year 2002-2005. All the state governments asked to implement these trades based on the need in their states. Based on the need of the present circumstances, 13 new trades have been introduced in the informal sector under Apprenticeship Training Scheme (ATS). Apart from this, competence based skill standards developed for 46 skill areas. Certification for the workers in the construction industry and Bamboo technology are initiated. The government initiated upgrading of existing ITIs as Centre for Excellence (CoE) to meet the world standard from its fund as well as funds borrowed from the World Bank. This is announced by the government in the 2004-2005 year budget speech. The industry partners like Confederation of Indian Industry (CII) partnering with existing Industrial Training Institutes (ITIs) to improve the infrastructure for better learning environment. In this process Directorate of Employment and Training (DGET) constituted Institute Management Committee (IMC) in collaboration with CIIs to manage ITIs. Already IMC is formed in 500 ITIs spread over 28 States. The government also initiated scheme for vertical mobility for the ITI students as they have option to join regular stream if they desire to do so. The government is also address the need for building skill of the persons in the informal sector and developing short term modular training courses to upgrade the existing skills. They are eligible to get certificate. It is in the process of developing certification process on par with national vocational qualification and certification system to standardize the certificate (Majumdar 2008). The above discussed skill development policy formulation is done by the federal/ central government (see chapter 4).

The implementation activities are being carried out through the provincial/state governments. It is not a new exercise introduced now after the announcement of the new skill development policy. Skill development took place over a period of time but not in a way as we envisage now. But this new exercise is envisaged with an objective of expanding our economy, and achieving benefits out of demographic dividend (FICCI 2012). Institutions, systems, mechanisms, processes, regulations, and procedures are being evolved and implemented in the context of globalization of economy. It is a shift in the process of skilling the workforce. Capturing the processes of transformation that took place in the country in the new context is a huge task in the given size of the country.

Hence, in this study, an attempt is made to cover a state in India as it is equivalent to that of a country in the west. Tamil Nadu (a province in India) has been chosen as a study area. The reason for selecting this province for the study is because Tamil Nadu is one of the highly industrialized states in India. It is the fastest urbanised province and manufacturing companies are located in Tamil Nadu. Apart from the above, 0.558 million micro, small and medium enterprises

are in Tamil Nadu. 50% of the economy has been contributed by textiles, construction, automobile, food processing, leather, IT/ITES, light engineering, banking and finance sectors.

In Tamil Nadu, the provincial government considers that skilling of workforce is an important initiative which will turn the whole society towards a new path and process of development and hence it makes the skilling of workforce as a scheme which is to be seen integrally and not sectoral. Though many departments are involved, the whole exercise has to be seen integrally as system, institutions and policy framework have been evolved at the central government.

Basically an attempt is being made in this article to study the process of skilling workforce through various ministries from the perspectives of implementation at the ground by the state government. Focus of the article will be on the process of implementation. Perceptions, views, perspectives and activities pertinent to implementation of skilling will also be covered in the analysis. It is not a policy analysis but a process of implementation of the target fixed by the Federal government and the involvement of state government from stakeholders' perspective. It is a qualitative analytical assessment study.

2 Perspectives

Before coming to the subject of analysis, a perspective based on the education system propounded by Mahatma Gandhi is presented briefly it was called New Education or Basic Education, but was totally misunderstood and neglected by the policy makers primarily by the federal government headed by the then first Prime Minister of India, Jawaharlal Nehru. Now, he has been criticized that he was not shown the extraordinary way to revolutionary education system in India (Balakrishnan 2014). According to the vision of M.K. Gandhi, true educational process has to be related to nature and society and learning should not have the objective of leading one career alone and instead it should enable one to become a good professional and a good human being with needed capability and capacity to lead a decent dignified, scientific human life. A system cannot be called an education if it does not clean the mind or does not teach the art of controlling the mind and senses or does not create a self-reliance and fearlessness or does not guide us in terms of livelihood or does not lead us from slavery to freedom. This new education prepares skilled and capacitated human being as professionals with human concern. By doing so, the quality of life will be improved. The best way of drawing out from the individual's body, mind, and spirit to the life situation to tackle the problem is allowing the individuals to draw out the best creativity that comes

through the skills. M.K. Gandhi called it as "Nai Talim" – "New Education" (Prabhath 2010) (see chapter 1).

It is a kind of education for the whole life. If one carefully looks at Nai Talim, one can easily conclude that it is an education for life. It is a preparation of the whole society to face the life through professional activities which means professionalizing the human activities. It essentially talks about skilling of the human being to perform the activities which are necessary to lead a decent dignified human life. But in India, unfortunately that kind of education was not followed as mainstream education and as a result, India followed the model of general education oriented to produce knowledge led human being substantially negating the skill education as it was considered low paid job and it will not fetch social recognition. It was also true that the skills were linked to the caste system in India. By giving importance to skill education, it was being visualized that it was meant for strengthening the caste based skill development. At the dawn of independence, it was totally misconceived, misrepresented and misinterpreted. Adequate attention was not taken at that point of time to reposition the skill education enunciated by Mahatma Gandhi, since many of the skill related activities are linked to caste systems which ultimately lower the image of the people who involve themselves as skilled workers. This trend made the youth not to join with any skill development programme. The classic case is Tamil Nadu.

When skill education was introduced at the dawn of independence by the then Chief Minister Rajagopalachari, a co-worker of M.K. Gandhi, it was opposed by mobilizing people that it was a caste based education. The skill education designed for school students consisting of two parts. Everyday morning the students have to attend the academic classes and in the evening they have to undergo practical skill training in the same school. The students can select the skill. But to remove Rajagopalachari from power, this scheme was interpreted as a scheme to promote caste based education system. Till date one finds the impact of that politics in Tamil Nadu. But now India talks much about skill education. At present, the Prime Minister of India contacted 0.4 million students of ITI in the country through video conferencing, to create awareness among the students about the importance of vocational education (New Indian Express 2014). Much hyped talk and decisions are being perceived as the target fixed to meet the labour requirements for the industry and service sector.

But the problem of India is the unorganised sector, in which more than 90% of the labour force is situated (World Bank 2008; ILO 2002). Further, 57% of working men and 62% of working women in villages are self-employed and the figure in the urban areas are 44% and 45% respectively (60th round of NSSO) (NSSO 2004a).

NSSO sample survey of 61st round (2004b) brought the percentage of person undergone formal training in the working age group (20-24 years). Among them, only 5% has undergone formal training. But one has to see its contribution to the economic growth of the country. 60% of the economy comes from only the unorganised sector. At every level, it is a known fact that by skilling the workforce in unorganised sector, a silent revolution would take place in the life and livelihood of the workforce and in the economy. Therefore a big challenge is before the governments both federal and regional. It is matter of research concern to investigate to what extent the regional governments are so serious and to what extent the ministries and departments are repositioning themselves to implement the new policy and programme initiative of the central government.

3   Context

In the context of globalization to accelerate and sustain economic growth, India wants skilled manpower. As per the estimate for India, 347 million workforces are needed in 22 high growth sectors. Apart from the above, the currently employed 150 million have to upgrade their skills. This is the reason why our productivity is low, earning capacity is low, wage rate is low, and work precision is low. The current level of skilling as followed in the past will be detrimental to growth as we have only 11,000 training institutions with 5.5 million seats are available (Majumdar 2008). Given the quantum of the workforce to be trained, the available training institutions in this country is very low. It is not only the quantum, but there are other factors which are more serious than the quantum. They are the shortage of teachers, poor infrastructure, and poor salary, absence of wage regulation for the skilled workers, outdated curriculum, poor research capability and a few others (see chapter 9).

There is another constitutional issue pertaining to VET. Education is in concurrent subject. It is neither in central list nor in the state list. There is no comprehensive act for skill education in India. The challenge before the nation is how to train this massive youth in skills needed to the market. All the above major issues are being highlighted in all the presentations of higher level officials of Tamil Nadu who are involved in the process of decision making and implementation of skill development activities. It is a very big challenge. But it can be done in a movement mode. It needs a big bank approach. By doing so, the country can take advantages of the demographic dividend. In India, macro actions are highly professional in nature with regard to skilling. Government of India has established institutional set up, fixed targets, and resources are in position. Operational mechanisms have been devised. It has got a policy, organisations, frameworks, fixed

responsibilities. What it needs is its operationalization at the ground level. How it happens at the ground is the issues to be analysed in this article.

For ground operation enabling conditions have to be created. NSDC has linked with 2,000 training centres and created capacity to train 78 million people in ten years. It has conducted district wise skill gap studies in 27 states. It conducts studies in 22 sectors. The robust policy architecture created at the centre can be easily followed by the state government if the whole process is in a mission mode through a synergetic framework. With great difficulty by overcoming all the pitfalls and short falls in database, skill gap studies have been conducted in the states by NSDC, wherein great details have been worked out as the job responsibilities (Jagtiani 2013). In the same way, details have been worked out as to the job responsibilities of the Ministries in skilling youth. All operational guidelines have been prepared by the central government and other institutions created by the central government for this task. It has gone to the extent of making a scheme for encouraging the state governments (Chenoy 2014). The above enabling provisions have to be used by the state government. In this study, how the Government of Tamil Nadu has taken efforts to operationalise the skill development mission's targets and processes have to be analysed.

4   Methodology

A combination of methods has been used to draw data. Discussion with central Minister, Secretaries in the Government of India, Institutional heads, and civil society organisations involved in skill development activities, were held in order to assess the operational levels of the skill development framework. Along with them the heads and principals of training institutions have been contacted and discussed with them about the current level of implementation of the skill development framework. Focus group discussions with the stakeholders who are the end users have been conducted. The stakeholders are students and non-student youth including women and other marginalised communities. Since the focus of the study is the implementation process of the new initiatives of the Government of Tamil Nadu, the study revolves around the process and not the targets. Number is not the focus of the study. How the process takes place is the concern of the study. Analysis will be made as to what extent the Government of Tamil Nadu has taken it seriously and implemented the skill development initiatives professionally. Government of Tamil Nadu has treated the skill development as a mission and a scheme. Hence whole process of implementation of the initiatives is being analysed in this article.

5   Implementation of the New Initiatives

In Tamil Nadu, a mission was created which is called Tamil Nadu Skill Development Mission with an objective of creating employment opportunities for the unemployed youth in Tamil Nadu through skilling youth and to transform Tamil Nadu into a 'Skill Hub' within a time frame (Kasirajan 2012). Before making an analysis of the skill development initiative of the Government of Tamil Nadu, the basic details about the institutions available for skilling youth have to be assessed.

In Tamil Nadu, totally 53,631 schools, 2,824 training institutions and 1,650 colleges and 65 universities are functioning. Universities and colleges produce 0.484 million graduates, 1.65 million students from the schools, 0.199 million from the skill training institutions. Totally all these institutions produce 2.333 million students. As per the estimate of the Government of Tamil Nadu, its skill training capacity is 1,062,754 (see chapter 5):

There are totally 3,589 institutions involve in skilling the youth in Tamil Nadu. It is to be noted that NSDC assessed the district wise skill gap of the state and made key recommendations and estimated the skills needed for the period 2012-2022. Tamil Nadu is one of the leading states in terms of demographic dividend with approximately 66% of the population lying in the working age group. The short fall in the availability of skilled human resources in expected to reach 0.36 million workers at the semiskilled and 0.225 million at the skilled level by 2022. The excess availability of unskilled human resources may be channelized towards meeting this gap through skill development initiatives and interventions.

Sl. No.	Skill Gap (in 000s)	2012-2017				2017-2022			
		Un-skilled	Semi-skilled	Skilled	Total	Un-skilled	Semi-skilled	Skilled	Total
1	Incremental Human Resource requirement	1,718	1,511	1,896	5,125	3,313	3,440	2,807	8,560
2	Incremental Human Resource availability	2,179	258	1,065	3,502	2,519	278	1,137	3,934
3	Skill Gap	461	1,253	831	1,623	810	2,162	1,655	4,626

Table 1: Summary of Skill Gap in Tamil Nadu (in 000s). Source: NSDC (2012)

Construction, retail and travel, hospitality and tourism and travel are expected to drive the incremental requirement for skilled human resources. Districts located in the industrial hub zone such as Chennai, Kancheepuram and Thiruvallur are expected to generate considerable skilled human resource requirements. Moderately developed districts namely Cuddalore, Dindigul, Erode, Madurai, Salem and Trichy are also expected to have a high human resource requirement in sectors such as IT, automobile, construction, food processing, textiles and retails. The NSDC study brought to the notice that youths are aspiring to work in service sectors such as IT, banking, hospitality, transport and retail. At the same time, small scale industries in Tamil Nadu are also face acute problem of low availability of approximately skilled human resources. The study also pointed out that Tamil Nadu has relatively high capacity for skilling students compared to other states. This also made the author to choose Tamil Nadu as study area to explore further to examine the initiatives of state of Tamil Nadu.

As per analysis of the author, the capacity utilisation at many government-training institutes is sub-optimal. At the same time, there are mushrooming of unregistered private training institutions creates confusion and clarity in assessing the training capacity of the state. The low employability of skilled and semi-skilled graduates from government as well as private institutes indicates the malady in skilling youth. In Tamil Nadu, the unorganised sector is one of the largest employees in the state economy accounting 5 million workers in 2012.

One of the major constraints faced by Tamil Nadu is the absence of a unified platform for training providers. Yet another problem confronted by the state in this domain is the absence of accreditation to distinguish qualified training institutions from other poor quality training institutions. There is a mismatch be-

tween the workers qualification in the certificate and the actual skill of the certificate holder. Poor linkages between the industry and training institutions have further weakened the training process. The report by NSDC on skill gap has given a detailed recommendation to improve the conditions of training. If the recommendations are implemented, many of the weakness we found in the skill development process in Tamil Nadu can be rectified and the maladies we see in this sector can be remedied. To implement the whole set of recommendation, a congenial atmosphere has to be created at the operational level. It should be in a big bank approach by adopting a movement mode and for which all stakeholders have to join together and take forward this initiative. To do the above job, the lead has to be taken by the government. How it takes forward has to be seen in this article.

As part of the National Skill development mission, Tamil Nadu Skill Development Corporation (TNSDC) has been created with a basic objective of acting as a nodal agency for all skill development training programmes of various departments of state government. Its main role is standardization of skill training programme. Primarily capacity of the training institutions has to be enhanced. Teachers' capacity in the training institutions has to be enhanced. Training institutions have to be equipped by providing needed facilities. The syllabus has to be updated. It has to be changed to the requirements of the market. Rs. 670 million have been allotted for the year 2013-2014 and Rs. 1 billion allotted for the year 2014-2015 for TNSDC. Based on the allocation, skill development activities are carried out. The details are given below:

Sl. No.	Skill Training	Amount sanctioned	No. of Trainees proposed	No. of Trainees completed skill training
1	IT Literacy to Government ITI students	164.40	13,500	12,411
2	Cell Phone Service Training	72.00	3,000	3,000
3	Faculty development training to Govt. ITI faculties	49.72	750	494
4	Soft Skill Training for 20,000 Govt. Art & Science College students	408.00	20,000	20,000
5	IT Skill training to 5,000 Govt. Engineering, Art & Science College students	150.00	5,000	5,000
6	Short term skill training in textile sector	85.50	3,600	3,210
7	Skill Training in Construction sector (CIDC)	577.50	3,500	2,286
8	Short-term skill training to unemployed youth through vocational training providers	825.00	55,000	55,000
9	Skill training in Leather sector	36.00	120	120
10	English language skill training to B.Sc. Nursing students	12.83	100	100
11	Welding skill training	107.52	192	192
12	Beautician, Embroidery skill training to unemployed women	5.13	50	50
13	IT and Soft skill training for the students of Tamil Nadu Institute of Labour study	2.00	100	94
14	Two wheeler servicing and maintenance training	30.00	200	200
15	Solar Photo Voltaic training	56.40	500	500
16	Short term skill training in Light Eng. Sector	36.00	200	200
17	Driver training to unemployed Youth	1500.00	25,002	10,832
18	Skill training in Hospitality sector	93.08	1,400	0
19	Skill training in Plastic Engineering	40.00	200	125
20	Skill training in Media and Entertainment sector	132.50	1,300	788
21	Skill training in power loom sector	10.00	400	200
22	Telecom sector skill training (Cell phone servicing)	53.75	5,000	4,081
23	Security service training	750.00	25,000	329
24	Basic computer course training to Government ITI students	171.50	14,000	5,000
25	Hospitality sector training through Food Safety Commissioner	36.12	960	160

26	Short term skill training in Retail sector	237.50	10,000	839
27	Short term skill training in Handicrafts	42.94	395	205
28	Short term skill training in Light Engineering	258.88	2,295	2,120
29	Short term skill training	10.53	300	95
30	Skill training through Tamil Nadu Adi Dravidar Housing and Development (TAHDCO)	1119.32	13,130	0
31	Short term skill training in textile sector	85.50	3,600	3,167
Total		**7159.62**	**208,794**	**130,798**

Table 2: TNSDC. Status update of Skill Training Programmes for the year 2012-2013. Source: Computed from TNSDM (2012)

Sl. No.	Agenda Items of 3rd Board of TNSDC	No. of persons to be trained	Total cost (Rs. in lakhs)
1	Short term skill training in Construction and Light Engineering Sector through Larsen and Toubro Limited	500	120.00
2	Short term skill training in textile sector through Department of Handlooms, Handicrafts, Textiles and Khadi.	1,149	25.27
3	Skill Development programme in Banking Financial Services and Insurance (BFSI) sector through Information and Communication Technology (ICT Academy	2,000	99.50
4	Welding and Plumbing – through Sri Ramakrishna advanced training institute	275	161.49
5	Health services skills training proposal from Apollo med skills	1,810	335.75
6	Standardization of skill development programme Constituting State level apex committee and district level committee for evaluation of private sector institutions	-	33.00
7	Skill development training in Footwear Manufacturing Technology through Footwear Design and Development Institute (FDDI)	480	144.00
8	Proposal for 605 Artisans skill training through Tamil Nadu Khadi and Village Industries Boards (TNKVIB)	605	55.91
9	Special programme for training to the members of the women tailoring Industrial Co-operative societies in operation of Motorized Sewing Machine	1,255	38.72
Total		**8,074**	**1013.64**

Table 3: Abstract of TNSDC 3rd Board Approved Proposal. Source: Computed from TNSDM (2012)

6 Action Plan for 2014-15

An Action has been drawn for 27 sectors to conduct training programme. The sectors are given below in the box.

Box-I

Retail sector & Marketing	Hospitality sector	Health services
Automotive	Construction	Transport/Logistic
Security services	Leather sector	Poultry training
Apparel/Textile sector	IT & ITES	Telecommunication
Media & Entertainment	Electrical & Electronics	Light engineering
Hi-tech Engineering	Chemical/Pharmacy	Food processing
BFSI	Gems & Jewellery	Agriculture
Energy	Animal husbandry	Sericulture
Fisheries	Marine Engineering	Hair Dressing & Beautician

Apart from the regular institutional training programmes, Rural Development Department is offering skill training to the self-help group women under this new initiative. In the same way, National Rural Livelihood Mission (NRLM) conducts such a kind of skill training to the rural ultra-poor men, women and youth. NRLM is launched by the Ministry of Rural Development in the year 2011 for skill training to the rural people belong to below poverty line. The programme implementation is done by the State governments. There is yet another skill training programme being conducted to the beneficiaries of the World Bank project 'Empowerment and Poverty Reduction'. All the above training programmes have been conducted in Rural Development Department of Government of Tamil Nadu.

Sl. No	District Name	Total PIAs	Total Trained	Total Placed	Total Under Training	Total Male	Total Female	Total Scheduled Caste	Total Scheduled Tribe	Total BC	Total Others	Total Minorities
1	Ariyalur	2	130	109	80	42	67	41	0	59	9	2
2	Chennai	7	4904	4781	0	4524	257	1802	642	1529	808	48
3	Coimbatore	5	5239	5147	474	550	4597	1098	116	1337	2596	80
4	Cuddalore	2	86	83	30	43	40	41	0	34	8	0
5	Dharmapuri	4	983	795	30	465	330	278	104	154	259	54
6	Dindigul	8	2483	2289	1221	872	1417	1182	7	788	312	312
7	Erode	9	3858	3577	1391	1016	2561	1167	15	876	1519	102
8	Kanchipuram	10	14491	13855	1456	1629	12226	6206	288	2428	4933	219
9	Kanniyakumari	2	284	283	0	57	226	8	1	14	260	0
10	Karur	7	2356	2212	560	306	1906	610	1	678	923	86
11	Krishnagiri	3	719	567	0	116	451	131	123	188	125	17
12	Madurai	8	6256	5573	900	2213	3360	1754	62	2235	1522	116
13	Nagapattinam	6	2421	1986	625	886	1100	927	25	582	452	13
14	Namakkal	6	3705	3383	410	1043	2340	1197	114	1458	614	64
15	Perambalur	1	36	33	0	3	30	13	0	10	10	0
16	Pudukkottai	2	311	293	192	293	0	89	2	153	49	4
17	Ramanathapuram	3	1538	1200	795	361	839	249	3	228	720	109
18	Salem	5	776	688	29	364	324	277	24	251	136	6
19	Sivagangai	3	2859	2518	620	652	1866	664	9	931	914	40

20	Thanja-vur	3	1235	1014	30	431	583	295	1	318	400	7
21	The nil-giris	2	219	208	0	73	135	117	5	80	6	89
22	Theni	4	1574	1528	262	831	697	432	11	821	264	7
23	Thiru-valavur	2	540	432	0	162	270	162	38	166	66	73
24	Thooth ukkudi	2	35	35	35	27	8	29	3	0	3	3
25	Tiru-chirap-palli /trichy	9	3175	2884	47	1201	1683	833	92	1191	762	238
26	Tiru-nelveli	5	1421	1232	900	515	717	534	10	338	350	164
27	Tir-uppur	8	8552	8373	408	2103	6270	1934	298	2110	4031	174
28	Tiru-vallur	8	6065	5348	2379	1974	3374	2227	153	1091	1877	200
29	Tiru-vanna-malai	6	931	795	20	424	371	264	11	422	98	194
30	Tiru-varur	2	444	430	0	235	195	242	6	171	11	0
31	Vellore	7	4523	3886	155	1344	2542	1407	67	1323	1074	119
32	Villupu ram	5	1423	1365	130	560	805	599	5	366	395	83
33	Viru-dhu-nagar	5	6718	6459	790	1834	4625	1170	103	4233	953	111
	Grand Total	161	90290	83361	13969	27149	56212	27979	2339	26563	26459	2734

Table 4: Skill Training for the Poor (both men and women) under NRLM. Source: GoI (2015)

There is yet another major skill training programme undertaken by the Tamil Nadu Adi Dravidar Housing and Development (TAHDCO), an organisation which builds the skill and capacity of the SC and ST youth to enable them to get employment opportunities. It is not a new initiative. It has been conducted for a long as other departments. The concern here is whether the departments are conducting such a kind of training programmes or not. It is essential to see whether all the skill development programmes are being conducted in the new context well within the framework which the government has evolved and approved.

Despite the efforts of the government, what we found in the whole process of skilling the youth at the ground is the mismatch between supply and demand. The whole skilling process especially in unorganised sector is not based on the demand (see chapter 12). The training programme organised by various ministries are totally top down approach and insensitive towards the demands and local needs (Ramanujam and Sodhi 2010). There is a pronounced skill gap both in terms of quality and quantity. There is always confusion in conceptualising the vocational education scheme in the larger framework of education. There is no interface between industry and academia for curriculum development and funding for VET. Government of India and Government of Tamil Nadu have taken steps to build the skill of youth. Government of India has developed policy architecture and implementation framework. To follow suit institutional mechanism and resource base have been created. Detailed implementation process has been worked out. It sets models also. By following the operational framework of the federal government, state government could have created such a mechanism and process to implement the policies and decisions professionally.

While making analysis of the process of implementation in the backdrop of the framework developed by the central government, one can easily identity the pitfalls and weaknesses (GoI 2013). Totally the skill education system has to be revamped. From school education to university education and training institutions, a thorough change has to be introduced to incorporate skill education is part of the process (GoI 2011). From syllabus revision to certification process total restructure has to be done. First national level directives have to be implemented based on the pitfalls indicated in the present system of education (Agarwal 2009). But there is no evidence of taking lessons from the successful experience of China, Germany, and Australia. Lot of lessons India can learn from the above countries to build on the VET (Mehrotra et al. 2014). In Tamil Nadu, the practical component of VET is missing to a large extent. There is no duality principle in the skilling process. There must be a practical training built into the VET system and for this the government and the industry has to play an active role. There is no joint certification by the educational institution and industry as there is no practical training in the industry. This has to be modified.

There is yet another problem we face in India namely the whole exercise has to be done under the common standardized principles and guidelines. Further, there is no national occupation standard for industry participation in curriculum building. In this direction there is no such initiative. VET need to be attended in the mainstream educational system through an act and resources. It is totally missing. Government can levy a tax as education tax for VET fund. As part of the Corporate Social Responsibility (CSR), Industrial Houses can set up funds for

VET. While interacting with higher level officials, one could see the nebulous administrative problems which hamper the whole exercise. Massive skilling exercise requires coordination among the departments which are all involved in skilling the workforce.

In India, coordination is a problem. Even Cabinet Secretariat finds problems in coordinating the ministries. That is the reason for skill development; Prime Minister takes responsibility for coordination. In the same way, at state level, coordination can be done only by the Chief Minister. It is being observed while investigator was in discussion with higher level officials. It cannot be done by a cabinet minister. Cooperation, coordination and synergy among the officials working in different departments for a common issue should emerge as a culture. It is not in practice in India. It needs a special mechanism. It is not only in Tamil Nadu, it is a culture in India in administration. The bureaucrats have learnt the art of working in line hierarchy but not in working with horizontal departmental coordination. Against this background, everyone suggest that the Chief Minister has to chair coordination board or arrangement.

Box-II

Experience of the Car Service Station in a Town

In Dindigul town in Tamil Nadu, Baskar owner of a car service station, affiliated with Maruthi company observed that he has invested three crore rupees in the car service station. He has engaged 40 employees who are well trained in car mechanism especially Maruti Company cars and the employees are earning a decent salary now. It takes a minimum of three to four years to train the employees to make them as qualified persons for his company. They are well trained and have got certificate from the training institutions; yet they are not fully equipped in this process. When they were in training in the training institutions, they never had a visit to any of the car service stations. The training institutions do not have any link with service stations. There is no such formal arrangement between the training institutions and the service stations in Tamil Nadu. He further stated that if there is any such arrangement, it will be a welcome move and service stations will offer their cooperation to such a move, since the service stations will benefit out of it. Instead of training them in service station, the training institutions at present train the trainees only in their institutions. He further observed that if there is any such arrangement, it will benefit with the service stations and the trainees.

Box-III

Views of an ITI Student

R. Kannan, a student studying in ITI in Dindigul said that he has no option other than pursuing his studies in ITI. It is a known fact that there is no respect for the students who pursues their studies in ITI in the society. Apart from poor social recognition, there is no guarantee for job. Even if one gets job, the salary is not attractive or not even to meet the basic needs. If there is a possibility of getting a good salary, people will not bother about social recognition. ITI has been considered as a place for dull witted boys and girls. Such is the scenario of education system in Tamil Nadu. If anyone gets opportunity to go abroad particularly to Middle East, one can get reasonably a good salary. Many of the students are pursuing their educational programme in ITI with the hope that they can go abroad with the certificate. Beyond this ITI has not attracted the attention of youth.

Box-IV

Observations of the Principal of a Local Polytechnic College

The principal of a local polytechnic observed that "everyone talks about demographic dividend but nobody works for decision making architecture, establishing institutional mechanisms and procedures and processes. Poor infrastructure, age old syllabus, and poor quality of teachers and poor social environment exist. With such an environment how would the training institutions produce quality product", she questioned. Decisions are made at a higher level but one has to study in India how they are executed at the ground level. There is a perception and information gap between the decision making body at the top and the implementing institutions at the bottom. In the past, skill training could not get such recognition as technical and medical education have drawn the attention of the youth but now the whole world talks about skill development, even after knowing fully well the advantages of skill development. But momentum has not been picked up in India at the micro level. The existing confusions in the sector could be set right only by enacting an act passed in state legislature.

Box-V

Observations of a Correspondent and Secretary of a Private ITI

An ITI was created by a civil society organisation as a charity work with the hope of helping the rural poor school dropout boys and girls by skilling them. By doing so, the rural youth can be made employable. With this objective was created in this town after producing trainees from the institute, the correspondent tested the students capacity and capability very objectively that too with the help of an industrialist. He found many of the students had not come up to the level of expectations of the industries and labour market. He started analysing the whole process of skilling youth, and he found weakness in policy making to course design, to course teaching and examination to certification. Everywhere he found weaknesses. He started finding out a way to remedy the situation. Since he visits western countries frequently, he thought that such a kind of system could be introduced. While exploring the possibility he found the administration and governance systems do not permit anyone to move away from the government established framework. He knows that his ITI can come out from the framework of the government but to pursue that course, he needs huge investment. Further, students want only government approved certificate. Against this background, he has to run the ITI with several weaknesses. After explaining the above, he concluded by saying that "unless a law is enacted, the existing training processes and procedures cannot be regulated".

Box-VI

Observations of a former Minister who looked after the Small and Medium Industries Ministry in the Central Government

Dr. E. M. Sudharsana Natchiappan made some important observations on skill development in India. He was in Dr. Manmohan Singh ministry. The central government has created policy architecture with detailed guidelines. The state governments have to implement it seriously and for which the responsible policy making person at the state level needs vision, understanding and commitment. They need a world view, national perspective and operational commitment at the state level. State governments can get the support of foreign countries for skilling youth and workforce. In such away MoU has been signed with many countries by the then central government. There are countries expressing their desires to work with India. They prepared detailed study reports on skill development. In this regard, if the state governments are efficient, they can get the support of the leading countries in skill development in the world for effective implementation of skill development policy. It requires development politics at the state level", he added.

Box-VII

Remarks of a senior Official involved in Policy and Decision Making in Tamil Nadu

"I never accept the argument that without training, our workforce is on the job. It is true that our workforce is not fully trained and not through formal training centres. I do not accept the argument that training given by the formal training centres are state of the art training, and others are not precise to the need of the job or profession. To illustrate his argument he quotes the weavers in India are producing the best silk sarees but they are not trained by the formal institutions. They are trained on their own training establishment. But it is not coming under the purview of the training system of the government. In the same way, a hair dressing saloon which is emerging as a multi-functional organisation throughout India which hires men and women who are not trained by the formal training institutions, but they are trained by small organisations in many towns and cities. The workers who are performing the hair-dressing job are not from the barber caste alone (who traditionally do their job). They belong to different castes. They earn much more than the traditional hair dressing. What we found in our system is the difficulty of keeping track of all the activities formally. Society behaves as it wants. Training for each and every skill is going on but they are not recorded, and as a result, we do not maintain data. Now the effort is on to map out the scenario of training. For the first time, at present we are conscious of generating data pertinent to skill development and training. The stupendous task we face now is to bring the training of all kinds and nature under the framework of the government. Yet it is on."

7 Analysis

In India, any initiative for transformation and development role of state governments is crucial as they are the implementing agencies of the schemes and programmes in the field. Federal governments' role ends with enacting laws, evolving policies, taking decisions and allocating resources. Effective implementation of laws, policies, decisions, schemes and programmes depends on the perception, perspective, capacity, skill and commitment of the state governments. Variations of the state on all the above aspects will reflect on the outcome of the activities of the states. India is known for its variations, differences, disparities and even discriminations. While implementing any decision at the ground level the micro factors which are present will play a predominant role in determining the success or failure (Jamal and Mandal 2013). Though at policy level, importance was given for the preparation of the skilled workforce for industry to sustain accelerated economic growth, adequate attention was not paid to skilling of the workforce in unorganised sector. It is to be recognised that this sector contributes to our economy up to 60% of the country's GDP. Strengthening of skill base of the unorganised sector will improve productivity, working conditions, social security and living standards of the people who are in the sector. Largely, it contributes for the wellbeing of the people in the society (Sodhi 2014).

At the national level in India, there is a National Council on Skill Development under the chairpersonship of Prime Minister. Along with the above,

NSDCB, NSDC, National Council for Vocational Training and Social Partners in Skill Development are on the job. Roles and responsibilities have been clearly delineated for each stakeholder in this process. Central and state governments have several responsibilities (GoI 2010). Equally, employers have got certain responsibilities. In the same way, trade unions have also got some responsibilities. Civil societies have to discharge certain responsibilities. All the stakeholders have responsibilities. They are to be discharged with a sense of commitment. All the responsibilities of the stakeholders have to be discharged synergistically. Coordination and synergy are the essential requirements for the success of this initiative. To achieve the expected results and targets from the existing level, a 'movement approach' is needed. At every level conscious and committed actions are the imperatives. Unless a big bang approach is adopted, reaching out the target is an uphill task. Time available for the stakeholders is limited. The coverage of area is wider. It requires huge machinery with high capacity for expansion. It cannot be achieved with government institutions alone. It is necessary to have linkage with private institutions and they are to be involved on an incentive basis.

The whole exercise has to be done at different levels with different approaches in a mission mode. At every village and in every town, such a kind of training facility should be available. The new urgency and the opportunities are to reach out to the stakeholders for which awareness creation has to be done. It has to be done just like a literacy mission. It should be placed in a high dynamic environment. While looking at the process of training, one can notice a clear mismatch between the expected level of activities from the government and the real activities carried out by the government in skilling the youth. The whole exercise of skilling the youth has not been fitting into the new framework of skilling and instead, the whole training goes as it was. Coordination and synergy among various agencies and institutions have not been achieved. The resources have been allocated to various kinds of activities. Coordination could not be achieved by the officials. Hence synergy has to be achieved only at the minister's level. Since resource allocation got enhanced for skill development, skill training programmes are visible. While chalking out the policy and the scheme, they are linked with national goals and policy. But in operation one could not see any such linkages among various stakeholders.

8   Major Challenges

The capacity of the training institution is limited. It requires sudden expansion but it does not take place. The present mind set of the youth is to earn more money and to earn social respect (Business Line 2014). Skill education in India is not a

proper tool to earn the social respectability. Neither one can earn a decent salary nor social recognition. In this context, a sizeable majority is interested in pursuing skill education. A student who cannot progress in academic stream and those who are rejected will opt for skill education. Students, who were in skill education in the school, may not try to secure job. They also want higher education to maintain social status. After getting a degree from higher learning institutions, students may seek job oriented skills to obtain a job. This is a paradox in Indian educational scenario. Country and State do not have adequate number of training institutions to the level of requirement. Absence of master trainers in many of the skills is another problem indicated in all the reports and finding teachers for all the skills in more than 25 sectors is very difficult. Many find difficulty in understanding the standardisation process. Inadequate institutional facilities for conducting capacity building and skill building are yet another major problem (NSDC 2012). The employers have been oriented in India to employ labourers at a cheaper rate of wages as they are untrained (Palit 2009). The employees recruit labourers and train them for their industry. Training institutions are many in types. Many are unrecognised which are not coming under the purview of the government. Some of the unrecognised institutions have produced extraordinary students with skill and the trainees got opportunity in foreign countries. In the same pattern, some of the multinational companies have started institutions to train workforce for their companies (Hartog 2000). Now the institutions are facing a dilemma whether to follow the central government framework or state government framework. On many of the issues, the state governments have not taken any action. Ground preparation for skill development in the new framework is a stupendous task. Yet it takes place at snail's pace.

Sl. No.	Status of VET	Active/Mode/Poor
1	Availability of Act for VET at state level	No Act
2	Policy for VET at state level	No Policy
3	Framework for implementation of vocation education and training policy of government of India	No Framework
4	Coordinating agency to coordinate institutions for VET	Tamil Nadu Skill Development Mission (TNSDM)
5	Visibility for VET programmes	No visibility
6	General awareness creation on VET	Slow
7	Minimum wage for sectors	No such initiative
8	Active involvement of industries	No active involvement
9	Active involvement of trade unions	No active involvement
10	Active involvement of civil society organisations in VET	No active involvement of civil society organisations
11	Active involvement of local bodies in VET	No active involvement of local bodies
12	Active involvement of research institutions in VET	Very few
13	Training programmes conducted	Yes
14	Revision of syllabus	Yes. Not radically
15	Capacity building of teachers	Very slow
16	Involvement of Mass media in VET	Poor

Table 5: Report Card. Source: Computed from TNSDM (2012)

9   Conclusion

For any development initiative or programme, its success depends on a number of factors and of which the implementation of the initiative or scheme or a programme is crucial. In India, three levels of governments are in position and of them, the federal government involves itself in decision making, policy making, resource allocation and law making. Beyond the above, it has no effective role in implementing the above. But there are two governments namely the state and local governments responsible for implementing the law, programme, scheme and any initiative of the federal government. The federal government has no machinery for implementation at the ground for many of the schemes and programmes. Hence, while evaluating the programme and scheme, one has to keep this factor in the backdrop of any such evaluation and analysis. Against this background, skilling of youth in India is being analysed. In this context, the present study has analysed the steps taken by the government of Tamil Nadu in skilling the youth both student and non-student, in the backdrop of the context of globalization and labour demand for stabilising the growth of India's economy. The new context requires a new set of laws, regulatory bodies, policy, strategies, institutional mechanisms and

processes even at the state government level. It needs a special focus, drive and fervour. To make use of the new opportunity, the government has to act efficiently and professionally by involving all stakeholders. The new context brought new opportunities and challenges. The process has to be responded professionally and strategically. Unless preparatory steps are taken expeditiously and professionally, all new opportunities will vanish within a short span of time.

While seeing the entire preparation of the state from policy preparation to human power preparation at the ground through the institutions, one can see the routine exercise done for implementation of a scheme or a programme by utilizing the resource allocation. The expected seriousness is not visible at the policy making level as directions are not forthcoming and as a result, all exercises are bureaucratic and hence skilling is not in a mission mode. It requires both ground level preparations and policy level preparations. It has to be seen to what extent the state government has taken steps to increase the institutional capacity to produce the needed human power from skilling institutions to the market. Absolutely there is no clear-cut step being addressed strategically. Secondly, the sectors which demand more skilled workforce have not been responded through skilling of youth through the skill development institutions on the required skill set. It is not only the expansion of institutional capacity but also repositioning of the institutions to work in a new context for the requirement of the market. The institutions have not been repositioned to meet the market requirement. The institutions have been functioning in their usual and traditional mode which never addressed the issues of the market sensibly and sensitively. From syllabus preparation to trainer preparation, the institutions have to act professionally but it does not take place, because there is no such a kind of direction from the governance and administrative channels.

In Indian context, institutional repositioning is a highly challenging task. Apart from the above, preparing the youth for skilling requires a special drive as conventionally Indian youth prefer academic stream to get a degree for elevating social status and knowledge oriented programmes for huge earning. Dignity of labour is a main issue to be addressed. Wages for skilled workers are not attractive which is critical to skill building. In this direction, there is no concerted initiative. Needed awareness is not being created among the unskilled youth. Above steps are crucial for attracting the youth towards skill development. Majority of the stakeholders are not aware of the new opportunities found in skill development and skill up gradation. Further for standardisation of skill building, serious efforts are not on at the lower level in setting up of the institutional mechanism. All skill building activities are being done in a mechanical way without matching the expected skill level perfection needed to the market. Even industries or the employees are not serious in this preparation as they prefer to be in the old track, which recruits untrained labour at a low wage and train them for their work in the industry

itself. Thus the employees are not serious in their partnership with the training institutions' preparation of work force for industry. All the above observations are meant for preparation of workforce for industry. But yet another segment the unorganised sector that engages 93% of the workforce needs substantial attention in skill building to increase GDP, reduce of poverty, increase productivity and increase income of the individuals and households. In this sector also, there is no systematic and conscious efforts to build the skill.

Only a fragment of the institutions, opinion makers and institutional leaders are conscious about the new opportunities and they are on the job. But there is no critical mass to transform the whole process of skilling of youth to match the requirement in Tamil Nadu. Mass media at present plays a vital role in stimulating the thought process of the people as they are vibrant. But media too has not realized the full potentials of the skilling of youth. One can easily understand while interacting with the stakeholders in the skilling process, that their understanding of the opportunities in demographic dividend, vocational skill, new institutional mechanisms and process of standardization is very poor. The challenges before the policy makers, institutions involved in skilling the youth are huge. The tasks are mammoth and gigantic. To respond to the challenges, an array of steps is needed. Of the tasks, one small step has been taken to allocate the resources to spend on the institutions and programmes. On all other fronts, the government has to work seriously.

10   Policy Prescriptions

- The whole skilling process has to be seen from the demand side and not from the supply-side.
- Research unit on skill development has to be created in the university system as huge potentials are in skill development.
- Data generation and validation has to be done on skill development in the respective department.
- A separate data portal has to be created and maintained by Tamil Nadu Skill Development Mission.
- Tamil Nadu Skill Development Mission has to be headed by the Chief Minister with a view to bring synergy among the ministries.
- All the existing confusion in the skill development process has to be cleared and effective skill development would take place only if an act is enacted specifically for skill development. It should be a comprehensive act to incorporate all stakeholders in this process.

- A massive awareness programme has to be created among all stakeholders about the significance and implications of skill development programmes and skill development courses.
- Minimum wage has to be fixed for each sector and thereby the present perception that skilled worker will get only low wage will change.
- All the skill development training institutions have to be equipped and their capacity has to be enhanced.
- By adopting PPP model, industries have to be involved in strengthening the training institutions and training processes.
- Skill development has to take place from school education to university system.
- There should be a separate minister to look after skill development programme.

Notes

Prime Minister's National Council on National Skill Development: The Eleventh Five Year Plan has provided suggestion to create a comprehensive National Skill Development Mission. As a result, a "Coordinated Action on Skill Development" with three-tier institutional structure consisting of (i) PM's National Council (ii), National Skill Development Coordination Board (NSDCB), (iii) National Skill Development Corporation (NSDC) was created in early 2008. The Prime Minister's National Council on Skill Development gives policy advice to the Ministry of skill development and entrepreneurship and National Skill Development Corporation.

References

Agarwal, P. (2009): Indian Higher Education: Envisioning the Future. New Delhi: Sage Publications. Pp. 227-230.

Balakrishnan, P. (2014): The Economic Consequences of Nehru. In: The Hindu. 16.10.2014. Pp. 12.

Business Line (2014): Samsung to Set up Technical Schools across Country. 15.08.2014.

Chenoy, D. H. M. (2014): Star Scheme to Catalyze the Skills Ecosystem. In: The Indian Journal of Industrial Relations. Vol. 49, No. 3, pp. 363-366.

FICCI (2012): Knowledge Paper on Skill Development in India: Learner First. New Delhi: Ernst & Young.

Government of India (2009): National Skill Development Policy. New Delhi: Ministry of Labour and Employment.

Government of India (2010): Skill Development Initiative Scheme Implementation Manual. New Delhi: Ministry of Labour and Employment.

Government of India[1] (2011): Working Group Report on Secondary and Vocational Education for the Twelfth Five Year Plan (2012-2017). New Delhi: Ministry of Human Resource Development.

Government of India (2013): Report to the People on Education. New Delhi: Ministry of Human Resource Development.

Government of India[2] (2014): Ministry of Skill Development and Entrepreneurship. New Delhi: Press Information Bureau.

Government of India (2015): Skill Training for the Poor (both men and women) under NRLM. New Delhi: Ministry of Rural Development. URL: http://www.nrlmskills.in/StateWiseAchieve.aspx.

Gill, I. S., Fluitman, F. and Dar, A. (2000): Vocational Education and Training Reform: Matching Skills to Market and Budget. New York: Oxford University Press.

Hartog, J. (2000): Over-education and Earnings: Where Are We, Where Should We Go? In: Economics of Education Review. Vol. 19, No. 2, pp. 131-147.

ILO (2002): Women and Men in the informal economy: A Statistical picture. Geneva: ILO.

Jagtiani, K. (2013): Estimation of Skill Gaps: An Analysis of the State wise vis-à-vis Sector Wise Report. New Delhi: National Skill Development Agency.

Jamal, T. and Mandal, K. (2013): Skill Development Mission in Vocation Areas Mapping Government Initiatives. In: Current Science. Vol. 104, No.5, pp. 590-595.

Kasirajan, M. (2012): Tamil Nadu Skill Development Mission. URL: http://planningcommission.nic.in/reports/genrep/reginal_conf2/TN/tamil_indus.pdf.

Majumdar, S. (2008): Workforce Development in India: Policies and Practices. Tokyo: Asian Bank Development Institute.

Mehrotra, S., Gandhi, A. and Sahoo, B. K. (2013): Estimating the Skill Gap on a Realistic Basis for 2022. IAMR Occasional Paper No. 1/2013. New Delhi: Institute of Applied Manpower Research.

Mehrotra, S., Raman, R., Kumar, N., Kalaiyarasan and Röß, D. (2014): Vocational Education and Training Reform in India: Business Needs in India and Lessons to be learned from Germany. Bertelsmann Stiftung. URL: https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Presse/imported/downloads/xcms_bst_dms_39337_39338_2.pdf.

National Skill Development Corporation (NSDC) (2012): District Wise Skill Gap Study for the State of Tamil Nadu. New Delhi.

New Indian Express (2014): Prime Minister Connects Himself with the Students of ITI through Teleconference. 13.10.2014.

National Sample Survey Organisation (NSSO) (2000): NSS 55th Round of Survey. URL: http://mospi.gov.in/national_data_bank/ndb-rpts-55.htm.

National Sample Survey Organisation (2004a): Survey on Morbidity and Health Care: NSS 60th Round. URL: http://mail.mospi.gov.in/index.php/catalog/138.

National Sample Survey Organisation (2004b): National Sample Survey 2004-2005 (61st Round). URL:http://catalog.ihsn.org/index.php/catalog/2316/study-description

Palit, A. (2009): Skill Development in India: Challenges and Strategies. ISAS Working Paper No. 89. Singapore: Institute of South Asian Studies.

Prabhath, S. V. (2010): Perspectives on Nai Talim. New Delhi: Serials Publications.

Ramanujam, M. S. and Sodhi, J. S. (2010): Skilling Women: For Work in Informal Sector. New Delhi: Shri Ram Centre for Industrial Relations and Human Resources.

Sodhi, J. S. (2014): A Study of Skill Gaps in the Informal Sector. In: The Indian Journal of Industrial Relations. Vol. 49, No.3, pp. 456 -470.

Tamil Nadu Skill Development Mission (TNSDM) (2012): General information. URL: http://planningcommission.nic.in/reports/genrep/reginal_conf2/TN/tamil_indus.pdf.

Unni, J. and Kani, U. (2008): Flexibility of Labour in Globalizing India: The Challenges of Skills and Technology. New Delhi: Tulika Books.

1 Ministry of Human Resource Development (2011)

2 Press Information Bureau (PIB)

Virmani, A. (2002): A New Development Paradigm: Employment, Entitlement and Empowerment. In: Economic and Political Weekly. Vol. 37, No. 22, pp. 2145-2154.

World Bank. (2008): Skill development in India. The Vocational Education and Training system. Report No.22. Washington: World Bank.

Company Training, Initial Training: Initial In-Company Vocational Training in India: Implications and Challenges for Indian Companies

Muthuveeran Ramasamy and Chandrakumar Mani

1 Introduction

While India has become a fairly significant manufacturing hub due to its industry-friendly policies, cost competitiveness and vast pool of human resources, some of the key challenges remain unaddressed. As a consequence, the full potential remains unrealised which manifests as a structural problem in the Indian economy (Indian industry has a low share in GDP). In response, the policy makers are constantly renewing their focus on expanding manufacturing and service sectors while various stakeholders feel that India faces an even bigger challenge with respect to vocational skills. Surveys and studies point out that the skill demand-supply gap is extremely wide. The National Skill Development Policy (MoLE 2009) recognises this problem and targets skill development of labour force both in the organised as well as un-organised sectors. Mehrotra (2014a) affirms Vocational Education and Training (VET) as one of the significant means, which has the potential to accelerate the supply of required quality workforce to enhance efficiency and productivity.

Though there is no dearth for institutions providing higher education in India, there is a vicious gap in execution of skill in new technologies and other emerging services (Ernst and Young 2012, GoI 2013). In spite of all the reforms and policy initiatives in the skill development space, the skill gap continues to be one of the key challenges that exist in the Indian labour market and this topic has been discussed in many papers (Chenoy 2012; Jamal and Mandal 2013; Sodhi 2014; Palanithurai 2014; Pilz and Pierenkemper 2014).

Though India has the strategic advantage with respect to demographic dividend, nearly three-fourths of India's population is unskilled. According to Planning Commission report of 2008, only 5% of the total workforce in India has undergone vocational and other forms of technical education and training while the same is more than 60% in developed countries. According to the UN's India Labour and Employment Report 2014, less than one-tenth of India's workforce has had any vocational training. The World Economic Forum's Global Talent Risk

report (2011) cautions developing countries like India and Brazil will also face huge skill gaps due to low employability. Further, it is expected that by 2024, the global shortage of skilled manpower would be to the tune of 56.7 million. Therefore, India which accounts for 28% of the graduate talent pool among the world's low cost economies has the opportunity to become a global reservoir of skilled manpower (FICCI 2012).

The agriculture sector accounts for about 54.6% of the total employment in which a rapid shift in migration of labour from agriculture to manufacturing and service sectors (Mehrotra et al. 2013). The Planning Commission 2012 projected that share of agriculture would still decline to 45% with the rise in industrial and service sector employment; on the other hand, the share of manufacturing sector is expected to rise to 18% by 2016-17. These facts clearly indicate the growing need for skilled workforce to meet the future labour market demand.

Response to the skill development challenges has come from multiple agencies viz. the government, not-for-profit and the market. This paper seeks to examine the responses from the market – namely, the in-company vocational training designed and delivered by the employers. The paper aims to investigate a wide range of in-company training initiatives and then sets out the objectives of the study; the method, the findings and suggests some pointers for the future of in-house training.

2   In-Company (Initial) Vocational Training

Education and training help both individuals and organisations to work more effectively, improve the productivity, facilitate adaptation to the changing environment and achieve desired goals (Lindsley 1998). Countries which adjust or adapt to the level of the required skill handle more effectively the challenge and opportunity in the world of work (Chenoy 2013). A study by Mehrotra et al. (2013) has found that most companies overcome the skill gaps they face by providing in-company training and on-the-job training for new (fresh) employees.

In-company vocational training is a method of training that allows individual employees to try out their skills by executing a set of tasks in the workplace. It serves dual functions – acquiring knowledge and skills besides employment (García 2002). As industries strive to attain higher growth, productivity and value-added production for a sustained growth path and success in the global economy, they need a suitably skilled workforce capable of constant learning. Employers need employees who consistently upgrade their skills and competencies which would improve productivity of the company (Pavlova and Maclean 2013: 56).

A Planning Commission of India's' report states that 80% of new entrants in the workforce have no opportunity to access skill training (Planning Commission 2008). It is also estimated that 58% of the Indian youth lack adequate skill deprivation and hence, un-employability is a bigger issue than unemployment (MoLE 2010). Mehrotra (2014a) insists that skill training requirements are increasing continually at two levels: firstly, making new job seekers entering the labour force employable and secondly, re-skilling those who shift their jobs. He also points out that in-company training in India accounts for only 18%, which is relatively low when compared to other BRIC (Brazil, Russia, India and China) nations. However, there is an increasing focus in the private sector in India and companies are taking several initiatives for developing the skill sets of their employees. Most companies, across varied sectors, have started realising the value of in-company training. Examples of different initiatives in India for in-company training are given in the Table 1:

Manufacturing Sector		
Company Name	**Sector**	**Initiative**
Aditya Birla Group	Multiple	Has established a training centre named 'Gyanodaya' which organises multi-tier, functional, role-specific and business-focused training pro-grammes.
Larsen & Toubro	Construction	Imparts vocational training in construction.
Vardhman Group	Textile	Enhances employee skills across all functions.
Godrej Industries	Electronic Goods	Trains students through a specialised course in refrigeration, air-conditioning and washing machine technology. On completion of the course, deserving students are offered employment.
Maruti Suzuki India Ltd. (MSIL)	Automotive	The company has been tied up with institutes like BGS Institute of Science & Management and the ABT Technical Institute to conduct Maruti-certified courses. Established a Technical Training Centre (TTC) to cater to the regular training needs of employees working in the manufacturing domain and also train them on the latest technologies.

Services Sector		
Company Name	**Sector**	**Initiative**
ITC	Retail	Provides training in Retail Management.
Grand Hyatt	Hospitality	In-house training initiative through School of Hospitality at Grand Hyatt, Mumbai. It also has established three more schools of learning – the School of Leadership, the School of Management Studies and the School of General Studies.
Infosys	Information Technology	Infosys' Global Education Centre in Mysore is one of the largest corporate training establishments in the world and can accommodate 15,000 people. New engineering recruits undergo a 14.5 week 'Initial Learning Program' provided by the company.
Accenture	Information Technology	'Leaders teaching leaders' – Accenture leaders share their past experiences for the betterment of the working styles of the present employees. Accenture provides a global portal 'My learning' in which 20,000 online courses are available.
ICICI Bank	Financial Services	Established ICICI Manipal Academy (IMA), in association with Manipal Education, to train newly recruited junior managers of the bank in banking and finance. The institute has an intake of 550-600 students once in every three months.
Syndicate Bank	Financial Services	Immediately after employment, the bank assesses the training needs of its new employees by adopting scientific methods. This is followed by a tailored training programme. In the training process, Syndicate Institute of Bank Management (SIBM) and Apex Training Institute of the Bank of Manipal play a major role.
Pawan Hans Helicopters Limited(PHHL)	Aviation	PHHL's training institute provides Aircraft Maintenance Engineering (AME) courses and imparts knowledge on helicopters and their systems to students.

Table 1: Training initiatives of Indian companies. Source: FICCI (2012)

3   Case Study on In-Company Training

3.1   *Aim of the Study*

The Indian labour market is facing an acute shortage of skilled labour or job-ready labour, including the categories of semi-skilled labour and labour intensive workers, which affects the growth of companies in terms of production, revenue prospects and sustainable growth (OECD 2009). The school system of education has been identified as one of the main factors as it is highly theoretical and not of adequate relevance to the world of work (Pilz and Pierenkemper 2014). Secondly,

given the considerable school drop-out rate, companies do not contented only with well-educated workforce; they also work with less-educated people and prepare them with required knowledge and skills by providing the needed training. The underlying assumption of the study is that in-company training creates pathways in strengthening a company's competitive edge by providing mutual benefit to the employee as well as to the employer. To limit the scope of this paper, the focus of the research is to find what measures companies in India take to train new employees, and what kind of training they offer.

3.2   Methods and Data

Semi-structured exploratory interview method was used to elicit answers to a wide range of questions related to initial in-company training. As studies on in-company initial training in India are scanty, an expert interview method was adopted to collate insights that the chosen experts have, in terms of professional and job training in their respective sectors.

The semi-structured questions were divided into three thematic blocks. The first block of questions was designed to seek basic details of the respondents to ensure a comfort level in sharing experiences and insights. For example, respondents were asked about their job title, range and scope of employees in companies. The objective of the second thematic block was to understand the existing initial in-company training practices and the third block of questions were designed to explore the availability of training facilities in the company. The study was conducted in September 2013 and in November 2014 with selected companies having employees ranging between 50 and 500. These companies were located in two metropolitan cities, Delhi (a city in Northern India) and Chennai (a city in Southern India) to avoid the possibility of regional similarities and differences affecting the outcome of the study.

A total of 17 company professionals were interviewed; 11 companies were indigenous while six were Multi-National Companies (MNCs). These interviews were conducted both in person (13) and through telephone (4). The companies surveyed belonged to the categories viz. automotive, electrical, energy, construction, machinery and equipment, raw materials, logistics, leather goods production, financial service and two-wheeler manufacturers which have been identified as industries with substantial growth performance. The interviews were administered with experts who are responsible for training aspects (for example HR Managers, Training Personnel) in their companies. As per the definition of 'Experts' provided by Mieg and Näf (2005) the selection of respondents was done critically and individuals who on the basis of their substantial experience filled a

specialised role in a specialised technical area were considered (cf. Pilz and Pie-renkemper 2014: 394).

4   Findings and Discussions

4.1   Induction Training

All the companies provided initial training to their newly recruited employees through 'induction training/programme' in which the initial training dealt with aspects like orientation on the company's history, functions, values, products, HR policy and safety.

  One interviewee, working in a financial services company, said that they do not assign any specific task to their new employees for the first three months:

> *"For the newly joined employees, the first 90 days are cooling period to understand the process. There is no any target or goals for them during this period. After this period, they will be assigned tasks in their respective section." (Regional Head - HR, Financial Services Company 2014)*

It was observed that training practices in a company induction programme for new employees varied according to their academic qualifications. The duration of the induction programme usually lasted until the employee was capable of carrying out the assigned work without external help or assistance.

> *"See the length of training below the academic level would be (for) one week as an induction where you talk to them about SOP, awareness, policies, procedures and all that." (Manager, Automobile Company 2013)*

As has been mentioned in the earlier section, given the high school dropout rates in the country, many of the companies face the problem of recruiting a well-trained workforce. Generally, in India, the employees are grouped under different categories based on the qualification and work. To elaborate, the 'skill categories' range from unskilled, semi-skilled, and skilled while highly skilled being the highest stage. Mostly, the less-educated workers join as unskilled or semi-skilled labour and start their career with limited earning. Later, they are trained on the job to meet the company's requirements (Majumdar 2008). In the unskilled category, no prior experience is required to perform simple activities.

  The new employees are not ready for immediate deployment in the companies and therefore, the companies plan their training activity to prepare them for work.

4.2   Safety in the Workplace

Seven companies placed greater emphasis on safety and security of employees as a key module in the induction training for employees. The employees were given training on health, hygiene, safety before they were deployed in the work places where risk is high. The big companies had a standardized training manual on safety measures, and the employees were expected to follow them in the work site. Safety and precaution were given more importance in the initial training, especially for shop floor workers. It could be illustrated from the quote below:

> *"We give prime importance to training on safety aspect, a training manual has also been developed which all our employees should follow, particularly those at the site." (General Manager, HR 2014)*

It was found that the safety measure training was mandatory, especially for unskilled and shop floor workers. The survey also revealed that in most cases, the training took place in two phases. In the first phase, it was mostly by observation of the work process/activities performed by an experienced worker. This gave the new employee an opportunity to understand the entire production process in the company. Among the companies surveyed, it was observed that the above process extended over a period of three to six months, which also depended upon the educational qualification of the employees. Usually, after this training, the employee was sent to a specific division or department where he/she had to perform the assigned work independently under the supervision of a senior employee for a specified period of time, without any assistance from the supervisor following which the employee's performance was assessed to decide if he/she could complete the assigned task independently. In a few companies, unskilled people were initially recruited to work in the production units wherein they are trained in a specific skill for a period of time through on-the-job training. One expert from the leather industry said:

> *"We recruit people who have qualified 8th, 9th and 10th grade to work in our production units. They will be given basic induction programme and then they will be sent to factories and start work as a helper category. He will be supervised by one of our senior employee." (Head – HR, Leather Industry 2014)*

After completion of induction training, new employees are sent to specific departments and assigned specific jobs by their senior employee under supervision. The above statements reiterate the fact that many companies were interested and willing to recruit less educated people in their production units. Accordingly, on-the-job was used as one of the significant means of training to provide domain-specific skills and knowledge. It was also evident that such less-educated people were often

assigned manual work as unskilled category which did not require any prior work experience or skill acquisition. Formal initial training in small and medium-sized enterprises was not very common and usually new employees were trained by an experienced (senior) staff member. The new employees are expected to learn and master the skills through 'learning by doing' process, which forms an important part of the on-the-job training.

A few companies recruited only experienced employees and expected their new employees to have minimum knowledge in the production unit.

> *"We don't recruit freshers. Employees preferably should have a minimum of two or three years of work experiences and it's better to have minimum technical knowledge in the production unit." (General Manager, Windmill Production Company 2014)*

In some companies, the new employees were not found to be of any immediate use in the companies. Hence, such companies planned their training activity to prepare such fresh employees for work. The underlying reason for taking experienced people seemed to be to minimize the attrition at the initial stage among freshers due to skill-related issues.

4.3   Training Facilities

With regard to training facilities, the majority of the companies interviewed mentioned that they offered initial training in the company premises itself while only a few companies sent their new employees to the company's training centre located in some other place. The major reason attributed to this fact was the investment costs involved in establishing such training centres.

In the bigger companies, most of the trainers were subject experts who were available in the headquarters and/or the branches whose main work was to impart training to new employees on specific technical aspects.

> *"And this training will be happening in our construction training Institute. We have eight such institutes all over India. (...) Majority of them are in house trainers. (...) but, in case for some trades we don't have trainers in house, we invite external trainers also." (Manager, Construction Company 2013)*

The larger companies had more chance to train their employees in a corporate training centre. By contrast, small and medium companies mostly trained their new employees through on-the-job training mode due to limited training facilities and cost factors besides the fact that such enterprises expected their employees familiarise in their work as quickly as possible.

4.4   Training Cost

In all the companies surveyed, it was observed that the companies were responsible for meeting the training cost and they believed it was worth incurring this investment in the new employee. The company's human resource or finance department, as part of the annual budget, decided on the annual cost of training budgets. This expenditure was considered as investment that would yield benefits in the longer run through increased productivity of the employees.

> *"I have my own annual budget. We call it an annual operative plan. So I need to depend on two things. One of previous expenses, the expenses in previous years and my future plan. On the basis of that I estimate the costs in ruling everything, trainer costs, training costs, material costs, everything." (Manager, Chemical Company 2013)*

A few companies felt that there was higher attrition for blue collared employees. Thus, the companies invested in initial vocational training not only to orient the trainees on products, values, target customers and safety but, also with an interest to build motivation and interest among new employees as they were considered to be long-term employees with high potential.

> *"The initial training is not only to give orientation on company and its values but also build interest among the new employees, increase productivity and retain (employees) them for longer time." (Head – HR, Leather Industry 2014)*

Becker (1962) argued that companies should not invest in giving training due to the issue of poaching by other competitor companies. However, company-specific training minimises the risk as the acquired knowledge and skill would be difficult to take to the job profile. Companies are also reluctant to invest in training as they fear that, benefits of training investment will go to competitors when employees leave the firm. One manager highlighted the loss of trainees to other companies as a reason for their company's reluctance to invest in training of employees.

> *"Companies and organisations are also now little wondering whether to invest amount of money in employees. Because you train them, you teach them and then they leave you." (HR, Electrical Company 2013)*

The fear of 'free-rider' (Pilz 2008) problem is very prevalent in the Indian labour market as it characterised as not regulated and experiencing high turnover (Pilz and Pierenkemper 2014). This phenomenon largely affects medium and small firms due to lack of in-house training capabilities. Certain measures were practiced by a few companies to retain the employees after the initial training period. In

order to minimise the risk of poaching, they set a minimum period for any promotion based on the trainee's work performance. Furthermore, the in-company training has both merits and demerits. Hoeckel (2008) describes the benefits of in-company training, which is given as a diagram below:


```
                    ┌─────────────────────────────────────┐
                    │         To the Employee             │
                    │                                     │
                    │         Job opportunity             │
                    │         Income-level                │
                    │    Attachment with the company      │
                    │ Chances to upgrade skill level/     │
                    │        lifelong learning            │
                    └─────────────────────────────────────┘
```

Benefits of
In-Company
Training

```
┌──────────────────────────┐   ┌──────────────────────────┐
│     To the Society       │   │     To the Employer      │
│                          │   │                          │
│ Improved good and services│   │   Higher Productivity    │
│ Reducing unemployment    │   │   Save recruiting cost   │
│ More income tax revenue  │   │ Minimise the risk of     │
│                          │   │ hiring a person from-    │
│                          │   │ external workforce and   │
│                          │   │    fewer turnouts        │
└──────────────────────────┘   └──────────────────────────┘
```

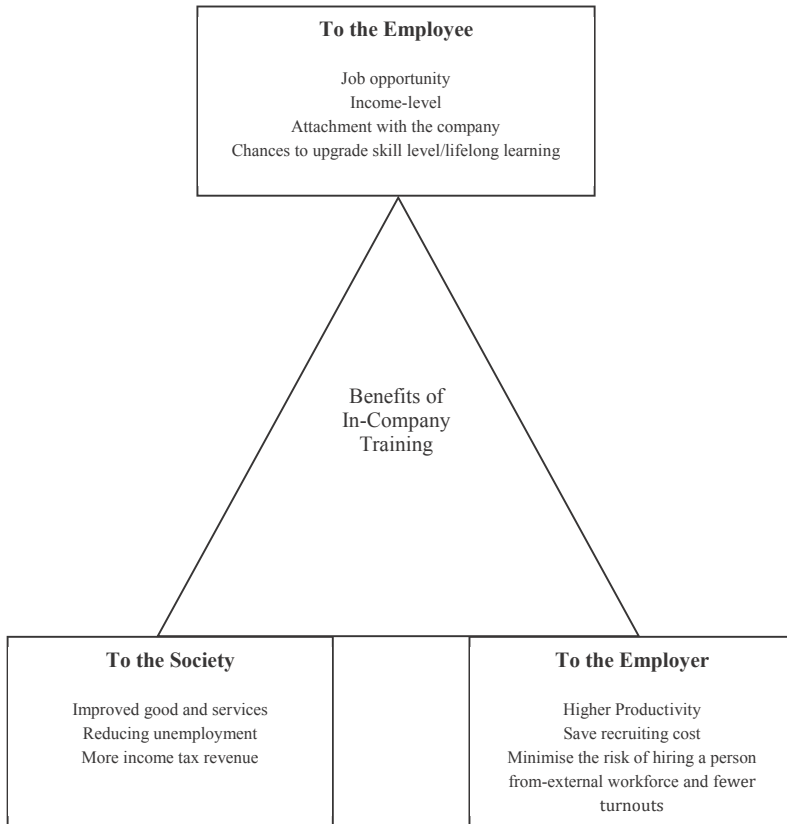*Figure 1*: Benefits of In-Company Training. Source: Adapted from Hoeckel (2008: 4)

Sabharwal (2013) distinguishes three important issues in financing in-company training. Firstly, 'learning', where the employer provides training but the employee does not pass or qualify. Then, 'productivity', which means the employee, does not perform in the workplace, even after he or she receives the training. The

third and final one is 'attrition', while employees are successful in the provided training, shown increases in productivity but leaves the company. These factors restrict employers not to pay for training and rather, they are more willing to hire trained or experienced workers. While this seems the shared viewpoint of the companies surveyed, recruiting skilled workers from the labour market on the whole is more expensive than training new staff in-company (Beicht et al. 2005).

5   Conclusion

According to human capital theory, education and training brings benefits in higher productivity and higher wages. In-company training has many advantages for both the employer and employees. As a result, many large companies leverage it as part of their strategic plan. It is more cost-effective and efficient to enhance productivity of the firm by upgrading skills of employees internally and/ or externally (Mehrotra and Ghosh 2014). As mentioned in the introduction, the Indian labour market is facing acute shortage of skilled, semi-skilled workers and in the labour-intensive sectors. In general, training has been considered as a process of building skills, knowledge, shaping attitudes and enables changes on the behaviour (Wills 1994; Palo and Padhi 2003; Robert and John 2004). The initial in-company training is one of the major influencing factors in retention and attrition of the employee in a company. It has scope of achieving the full potential of employees' efforts (Wills 1994) and enhances a firm's productivity (Rohan and Mohanty 2012). Indeed, it is important to note that, initial in-company training improves the ability of unskilled, semi-skilled people even in the production unit to perform specific tasks more effectively. This scenario exists mostly in the small medium enterprises, which accounts for a large portion of the unorganised sector (Hajela 2012).

6   Outlook

This study is a pilot one which may not be regarded to reflect the complete scenario existing in India. However, the study being a starter; it provides some useful facts for broader – larger scale research in the future. Vocational institutes must work closely with companies to offer market relevant training courses and not by mere extension of the training period through an apprenticeship training programme. Quite often, VET system focuses on semi-skilled workers in the formal sector which is a small proportion of less than 10% of total working population. Hence, the Governments at the Centre and States have to put their efforts jointly

to overcome skill shortages of casual workers which require policy interventions and initiatives, especially to train people in the informal sectors, as most of the employers regard employee training as the responsibility of the state (see chapter 7). It cannot be denied that it is also the responsibility of companies, and requires reform at the policy level, incentives to the firms in terms of tax deduction for in-company training or subsidies to encourage firms to invest more on in-company trainings. The government and market should also take account of less-educated, unskilled in this process, as they would from the majority of the total working force in the country. Taking consideration of regional disparities in terms of de-mographic profile and levels of development, each State needs to invest in training where the scope for the mass employment sector is more rather funding general training initiatives. When such initiatives are started and are in place, companies have the possibilities of 'job-ready' workers in future to provide multiple benefits, including the development in the economy and society at large.

References

Agarwal, T. (2013): Vocational Education and Training Programs (VET): An Asian Perspective. In: Asia-Pacific Journal of Cooperative Education. Vol. 14, No. 1, pp. 15-26.

Becker, G. S. (1962): Investment in Human Capital: A Theoretical Analysis. In: Journal of Political Economy. Vol. 70, No. 5, pp. 9-49.

Beicht, U., Walden, G. and Herget, H. (2005): Costs and Benefits of In-company Vocational Education and Training in Germany. BWP Special Edition 2005. Pp. 38-40.

Chenoy, D. (2012): Repositioning Skill Development. In: Business Manager. 10-2012. Pp. 7-9.

Chenoy, D. (2013): Public-private Partnership to Meet the Skills Challenges in India. In: Maclean, R. et al. (Eds.): Skills Development for Inclusive and Sustainable Growth in Developing Asia-Pacific. Springer.

Ernst & Young (2012): Knowledge Paper on Skill Development in India: Learner first. URL: http://www.ey.com/Publication/vwLUAssets/FICCI skill report 2012 _finalver-sion/$FILE/FICCI skill report 2012 finalversion low resolution.pdf.

FICCI (Federation of Indian Chambers of Commerce and Industry) (2012): Skills Development Sector Profile. URL: http://www.ficci.com/sector/74/Project docs/SectorProfile.pdf.

Garcia, M. A. A. (2002): The Design and Evaluation of In-company Training Programmes: Profile of the Support Team. In: European Journal Vocational Training. Vol. 25, No. 1, pp 53-63.

Government of India[1] (2008): Eleventh Five Year Plan. Vol. 1. New Delhi: Planning Commission.

Government of India[2] (2009): National Policy on Skill Development. New Delhi: Ministry of Labour and Employment.

Government of India[3] (2010): Annual Report to the People on Employment. New Delhi: Ministry of Labour and Employment.

Government of India[4] (2012): Twelfth Five Year Plan. New Delhi: Planning Commission.

---

1 Planning Commission
2 Ministry of Labour and Employment
3 Ministry of Labour and Employment
4 Planning Commission

Government of India (2013): All India Survey on Higher Education. New Delhi: Department of Education.

Hajela, R. (2012): Shortage of Skilled Workers: A Paradox of the Indian Economy. SKOPE Research Paper, No. 111.

Hoeckel, K. (2008): Costs and Benefits in Vocational Education and Training. URL: http://www.oecd.org/education/innovation-education/41538706.pdf.

Jamal, T. and Mandal, K. (2013): Skill Development Mission in Vocational Areas-Mapping Government Initiatives. In: Current Science. Vol. 104, No. 5, pp. 590-595.

Lindsley, S. L. (1998): Communicating Prejudice in Organisations. In: Hecht, M. L. (Ed.): Communicating Prejudice. California: Sage Publications. Pp. 187-205.

Majumdar, S. (2008): Workforce Development in India: Policies and Practices. Tokyo: The Asian Development Bank Institute. URL: http://www.adbi.org/files/2008.11.18.book.workforce.development.india.pdf.

Mehrotra, S. and Ghosh, D. (2012): International Experience with National Training Funds: Lessons for India. IAMR Policy Brief, No. 1/2012. URL: http://www.iamrindia.gov.in/Downloads/policybrief/PolicyBrief-NationalTraining Fund.pdf.

Mehrotra, S., Gandhi, A. and Sahoo, B. K. (2013): Estimating India's Skill Gap on Realistic Basis for 2022. In: Economic and Political Weekly. Vol. 48, No. 13, pp. 102-111.

Mehrotra, S. (2014): Quantity & Quality: Policies to Meet the Twin Challenges of Employability in Indian Labour Market. In: The Indian Journal of Industrial Relations. Vol. 49, No. 3, pp. 367-377.

Mehrotra, S. (2014): From 5 Million to 20 Million a Year: The Challenge of Scale, Quality and Relevance in India's TVET. In: Prospects. Vol. 44, No. 2, pp. 267-277. URL: http://link.springer.com/article/10.1007%2Fs11125-014-9305-2.

Mehrotra, S., Raman, R., Kalaiyarasan and Kumra, N. (2014): Vocational Education and Training Reform in India: Learning from Good Practices at Home and Abroad. IAMR Report, No. 1/2014. India: Institute of Applied Manpower Research.

Mieg, H. A. and Naef, M. (2005): Experteninterviews. Zürich: ETH Zürich. URL: http://www.mieg.ethz.ch/education/Skript Experteninterviews.pdf.

OECD (2009): Promoting Pro-poor Growth: Employment. Paris. URL: http://www.oecd.org/greengrowth/green-development/43514554.pdf.

Palanithurai, G. (2014): Skill Development in Higher Learning Institutions: A Micro Analysis. In: The Indian Journal of Industrial Relations. Vol. 49, No. 3, pp. 471-482.

Palo, S. and Padhi, N. (2003): Measuring Effectiveness of Total Quality Management Training: An Indian Study. In: International Journal of Training and Development. Vol. 3, No. 7, pp. 3-16.

Pavlova, M. and Maclean, R. (2013): Vocationalisation of Secondary and Tertiary Education: Challenges and Possible Future Directions in India. In: Maclean, R. et al. (Eds.): Skills Development for Inclusive and Sustainable Growth in Developing Asia-Pacific. Springer. Pp. 43-66.

Pilz, M. (2008): Initial Vocational Training from a Company Perspective: a Comparison of British and German In-house Training Cultures. In: Vocations and Learning. Vol. 2, No. 1, pp. 57-74.

Pilz, M. and Pierenkemper, S. (2014): Apprenticeship Programs-Lessons from Germany & German Companies in India. In: The Indian Journal of Industrial Relations. Vol. 49, No. 3, pp. 389-400.

Robert, L. M. and John, H. J. (2004): Human Resource Management (10th Ed.). Thomson South-Western.

Rohan, S. and Mohanty, M. (2012): Impact of Training Practices on Employee Productivity: A Comparative Study. In: Inter Science Management Review. Vol. 2, No. 2, pp. 87-92.

Sabharwal, M. (2013): Education, Employability, Employment, and Entrepreneurship: Meeting the Challenge of the 4Es. In: Maclean, R. et al. (Eds.): Skills Development for Inclusive and Sustainable Growth in Developing Asia-Pacific. Springer.

Sodhi, J. S. (2014): A Study of Skill Gaps in the Informal Sector. In: The Indian Journal of Industrial Relations. Vol. 49, No. 3, pp. 456-470.

Wills, M. (1994): Managing the Training Process: Putting the Basics into Practice. In: Journal of European Training. Vol. 18, No. 6, pp. 4-28.

World Economic Forum (2011): Global Talent Risk Report. URL: http://www3.weforum.org/docs/PS_WEF_GlobalTalentRisk_Report_2011.pdf.

Training of Teachers: Institutionalising Training and Development of Academic Faculty of TVET Institutions for Realising Excellence

Malayankandy Usha Ajithkumar

1   Introduction

> *"In the last century we were very proud of IITs (Indian Institutes of Technology). It is a very good thing no doubt but in this century we need to think about ITIs (Industrial Training Institutes) and give it the same importance,"*

said Shri Narendar Modi, current Prime Minister of India at the National Conference on Skill Development on the morning of Wednesday 25th September 2013.

In India only 40% of the 55,000 instructors at Technical and Vocational Education and Training (TVET) have undergone a full instructor-training course. There is huge shortage of quality instructors in the country. The quality of training depends upon the quality of trainer. Therefore, there is an urgent need to look into the training of the trainers of ITI (data compiled from Planning Commission Reports 2011).

The role of TVET in preparation of manpower for the national development is well acknowledged in India today. Never the less, the potential of this aspect of education has not been fully exploited due to a wide variety of constraints. One of them being lack of qualified, trained and motivated trainers essential for determining the skills of future workers. The issues and challenges of TVET teachers are quite different from general teachers and thus require a distinct response in terms of skills and competencies that should be regularly updated alongside technological. Concentrating on capacity building of the trainers of TVET will maximize the nation's investment in vocational education.

2   Rationale for Staff-Training for Excellence

The Indian government has been dedicated to reform the education system and to place India into a world class education hub. A knowledgeable and skilled workforce is seen as the most important human capital required for the development of India. The work force needs to be continuously equipped with knowledge and

skills to increase India's competitiveness in the global market. This requirement is leading to a demand on the skills delivery system, which is particularly the role and responsibility of TVET teachers or trainers (see chapter 13).

The most important 'agent of change' in 'Knowledge Society' is the teacher. The Second International Congress on TVET (1999) organised by UNESCO points out that from economic growth to human development the bridge has to be built through the teachers who are well trained. It is essential that Technical and Vocational Education (TVE) teachers are not only qualified in an academic sense, but have a good knowledge of real world systems and processes within their field of teaching. It is critical that the TVET teachers possess knowledge, skills and attitude relevant to the rapidly changing labour market. Ideally, this should be attained prior to entering TVE teaching duties, and kept up to date by regular contact with industry or commerce, or otherwise addressed through in-service programs. In this context, Bird (1997) defined a fully qualified technical/ vocational teacher as one who is certified in his/ her area of expertise, and has appropriate level of pedagogical skill. Without qualified and well-experienced TVET teachers and trainers to plan for and execute TVET programs not much can be realised at the grassroots (see chapter 3).

An entirely new package of educational content, new set of skills and new methodologies for delivery are emerging as among the greatest shifts in paradigm in teacher educations. An important step forward in addressing this problem must begin with teacher preparation and professional development. Professional development contains a huge amount of knowledge and experiences. These experiences can be divided into formal experiences (such as attending workshops, professional meetings, monitoring, etc.) and informal experiences such as (reading professional publications, watching television documentaries related to academic discipline, etc.) (Gancer 2000). TVET teachers should possess the appropriate personal, ethical, professional, teaching qualities and play an influential part in helping to shape students' attitudes and aspirations. Good preparation will enable TVET trainers to operate in, and adapt to, an ever-changing scientific, technological, and social environment. Duke and Stiggins (1990) name five areas in teacher professional development: improvement of lessons, vocational development, school organisation, personal development and career development.

TVET teachers always need to increase their capacity; therefore, besides knowledge of the subject matter, subject-related didactics, educational sciences, and psychology, a teacher also needs diagnosis, evaluation, co-operation and quality development.

Dimensions	Undesirable	Desirable
Pedagogical Base	Instructive Model	Eclectic Model based on Constructivism
Learning Focus	Content	Learning to Learn
Learning Strategies	Solely Interactive	Collaborative & Interactive
Learning Goal	External Controlled	Autonomous
Curricula	Traditional	Competency Based
Teacher Role	Didactic	Facilitative
Delivery Modes	Fixed	Open
Learning Approaches	Surface	Deep
Learning Structures	Rigid	Flexible/Modular
Instructional Models	Instructor Centred	Learning Team Centred
Learning Methods	Passive	Active

Table 1: Shifts in the Pedagogical Dimensions of Teacher Education. Source: Majumdar (2011)

Professional development has a significant positive impact on teacher's beliefs and change in school practices, students learning and on the implementation of educational reforms (Cobb 2000; Frankes et al. 1998; Nelson 1999: 6). This statement also supported by Wood and Bennett (2000) and by Kallestad and Olweus (1998) in a study involving Norwegian teachers emphasised that the professional preparation and development have a large impact on defining teachers' goals for their students and these goals in turn affect the teachers' behaviour in the classrooms and schools. But to realise that, teachers need to know different kinds of skills, knowledge, dispositions and values, which affect their proficiency. These requirements according to Reynolds (1992), de Leon (2001), Borko and Putnam (1995) and Shulman (1986) are: general pedagogical knowledge, subject-matter knowledge, knowledge of student's context, ability to bridge theory and practice, external evaluation of learning and knowledge of strategies, techniques and tools to create and sustain a learning environment/ community, and the ability to use them effectively.

Since the objectives of TVE are to raise the standard of general education and to provide professional skills, teacher trainees should be given a more adequate cultural foundation (mother tongue, modern languages, social sciences, etc.) there should also be more emphasis on pedagogical skills. It was never safe to assume that competence in a vocational specialisation was enough to ensure effective classroom teaching, particularly in catering for the wide range of abilities and backgrounds characteristic of classes today (Banks 1996). The problem of how technical and vocational teachers could best keep their professional skills up-to-date became more intractable with the increasing pace of technological change. In the extreme case teachers have to be totally re-trained because the world of work is changing radically.

The qualifications of teachers at technical and vocational schools and training centres are different from those of the general education sector (Schrembs 2001). Chappell and Johnston (2003) advocate that TVET teachers and trainers have multiple identities. They have one identify located in being an industry specialist, with a detailed knowledge of a specific industry, its history, current challenges, equipment and training systems. Callan (2005) identified five required capability areas for TVET teaching staff: expertise in teaching and learning (e.g. demonstrates an understanding of a range of learning theories and techniques that inform practice, adapts learning and teaching strategies to suit individual students and learners); flexible delivery and assessment (e.g. able to factor on-site assessment to suit the systems of the workplace, has knowledge and skills in forms of flexible delivery, including distances, blended, on-line or work-based learning); learner support (e.g. able to customise learning resources for groups and personalise for individuals, knowledge of a range of behaviour management strategies for responding with difficult people); and industry currency (e.g. demonstrates a technical expertise in their subject area, able to partner with industry).
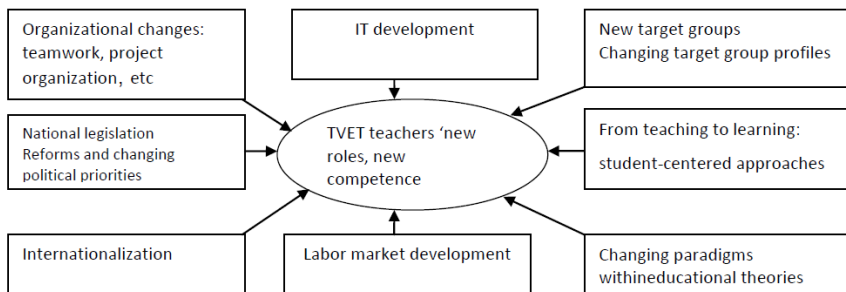
Figure 1: Professionalization of TVET Teacher. Source: Härkönen and Volmari (2004)

Dickie et al. (2004) draws the following areas of capabilities for TVET teachers from the material they reviewed:

- Pedagogical expertise: This includes the capacity to adapt learning and teaching strategies to suit individual learners, pedagogical understanding and access to a range of learning theories and techniques.
- Learner focus: This includes the ability to promote and support self-directed learning, as well as to teaching for TVE, and enable lifelong learn-

ing. However, a learner-focused approach is not the same as learner-centered learning in which the TVET teacher is but one of a range of resources available to the learner.

- Client orientation: This involves brokering and relationship-building skills, to enable teachers to provide advice to clients (including learners and enterprises), establish and maintain relationships, network with industry, develop partnerships, and customise training and delivery to meet client needs, and evaluate and monitor outcomes.

- Industry currency: Vocational expertise in the teacher's subject area is as critical as pedagogical expertise. This is particularly important as it is highly valued by employers and learners alike. However, increasing demand for generic skills by employers means that teachers need to be able to balance delivery of technical and industry specific skills with generic employability skills.

- Use of technology: This covers knowledge and expertise in using new and emerging technologies, in particular to stay in touch with and advise learners, as well as for flexible delivery. These skills are also important to enable TVET teachers to 'stay in touch' with each other, including via communities of practice and other networks, and can help to combat the isolation many teachers experience.

- Personal qualities and attributes: Personal attributes are identified as being absolutely critical for all TVET teachers. Communication skills, a commitment to self-development, a capacity to deal with change, self-directed learning, managing time and managing knowledge are all seen as important.

Schrembs (2001) has stated that an instructor has to have a variety of competencies such as:

- *Personal competencies:* Instructors are not born as instructors, they have to be trained. Apart from abilities that can be trained, a teacher should have some character capabilities. Some instructor has a well-balanced personality. This will help trainees to build up confidence in the instructor and lead to a good mood in the classroom. He/she should have natural authority and be able to guide young people. Stolte (2009) has stated others personal competencies such as readiness for change, emotional stability, resilience, diligence, personal commitment and responsibility for own decisions.

- *Pedagogical Competencies:* This type of qualities can be acquired during the teacher training course. It can be regarded as the contents of a

teacher's apprenticeship. First of all a teacher must be able to choose the correct and most important topics of a trade. Not everything can be learnt within the period of training. The second step is to group these topics into logical units and prepare proper lessons with it. Planning and running a lesson requires competencies in the whole field of teaching techniques. He should be able to transfer theoretical knowledge as well as practical skills.

▪ *Professional Competencies* These abilities include the professional skills. A teacher should have acquired them during his own apprenticeship as a craftsman and his working experience. He/she must be a master of his/her trade. To be a master does mean being a model. It is not enough to be a craftsman but a good craftsman. An instructor should always keep his/her eyes open for changes and developments in his/her trade. Instructors should always be up-to-date and interested in further training and upgrading. It is very necessary to have a wide range of general knowledge too.

TVET teachers must be effective users of information and educational technology, if they are to become 'learning facilitators' in a connected world of universal information. The UNESCO (2004b) proposed a program of building capacity of teachers to implement ICT (Information and Communications Technology) in their teaching process throughout the world. The suggested framework for the professional development of teachers consists of four main approaches: Emerging, Applying, Infusing, and Transforming. These approaches were illustrated in the below figure:
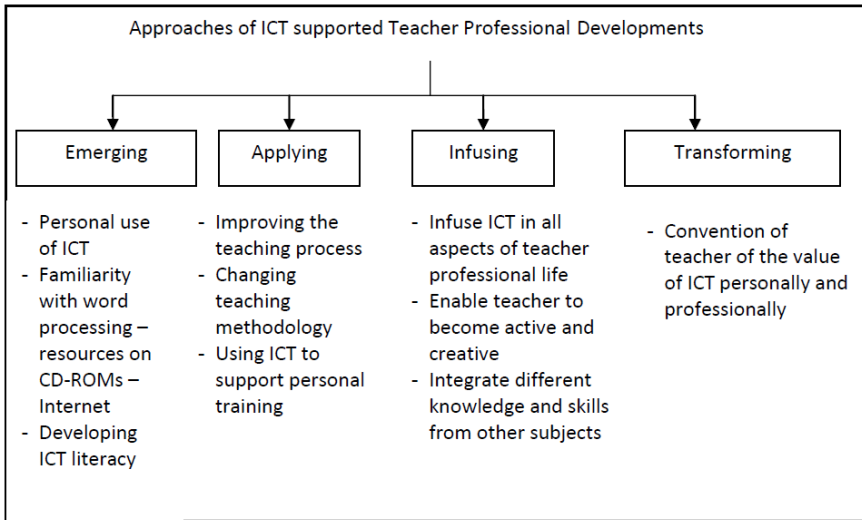
Figure 2: ICT supported Teacher Professionalisation. Source: Unesco (2004b)

3   Overview of Teacher Education Programme

Education system in India comprises of primary, middle/ elementary, secondary, higher secondary and higher education. Primary education is of five years of school class 1 to 5 with entry age of five years. Middle level is from 6th to 8th class (see chapter 2). Secondary level is of class 9th to 10th and higher secondary is of 11th and 12th class (see chapter 3) After higher secondary, higher education at bachelor and master level starts (see chapter 5 and 6). For the development of skilled workforce, another stream is TVE, which is comprised of three years of education after matriculation/ 10th class and vocational training certificate courses of six months, 12 months and 18 months duration after 8th class or 10th class. These diploma and certificates are offered in almost all technologies for both girls and boys throughout the country.

Vocationalisation primary aims at equipping the youth with such manual skills founded on basic scientific principles as would be needed in to-day's society and with capacity to adopt to ever-changing scientific and technological developments. Employability is the corner stone of the new system of vocationalised education. Vocationalisation is looked upon as an effective instrument to prepare middle level manpower who would not merely be superior to skilled workers but who would work with their brains as well as their hands. There are a large number

of employment opportunities for which there are no suitably qualified persons with appropriate skills, knowledge and competencies.

A number of committees and commissions have been formed from time to time to consider the prevailing educational system and to make recommendations for progress. It was first recommended even in 1882 by the Indian Education Commissioner the Hunter Commission, that the curriculum of the secondary education should be split up into A and B curriculums; curriculum A to have subjects that were to be useful for higher studies and curriculum B to have vocational occupational and practical subject. The Hartog committee (1929) recommended that more boys should be diverted to industrial and commercial career at the end of the middle stage. The Sapru Committee (1934) recommended diversified courses at the secondary stage, preparing students for university education and providing vocational education. The Abot and Wood Report (1937) recommended that the nature of vocational education should be determined by the prevailing circumstances in view of the multi-various needs of the locality. The Sargent report of 1944 recommended that the high schools will be divided into two classes: (i) academic high schools, (ii) technical high schools. The Secondary Education Commission, 1948-49, stressed the need for vocational education. The Kothari Commission, 1964-66, recommended introduction of vocational stream along with the traditional academic stream at the higher secondary or plus two, one preparing students through a two-year programme for university education and the other through vocational courses of various durations. Such products can perform a large number of middle level jobs which now are being performed by the university graduates. In 1976 the NCERT (National Council of Educational Research and Training) document "Higher Secondary Education and its Vocationalisation" was presented to the country setting out a model conceptual framework for implementation. The programme for Vocationalisation of higher education was initiated in 1976 (see chapter 3).

In India vocational education aims to develop skilled manpower through diversified courses to meet the requirement primarily the unorganised sector and to inculcate self-employment skills in children through a large number of diversified vocational courses. Given that only 7-10% of population is engaged in formal sector of economy (NSS, Govt. of India 2005); development of vocational education will provide skilled labour force in the informal sector which would further enhance the productivity (see chapter 12). In India, the general education and vocational education have been operating as two different verticals with very little interaction between the two. This had led to hesitation in students opting vocational courses as there is a general apprehension that one cannot pursue higher degrees or qualification.

The Vocationalisation of secondary education scheme was revised in 2014 to address the issue of weak synergy with industry in planning and execution, lack of vertical and horizontal mobility, redundant courses and curricula as well as paucity of trained vocational educational teachers. The National Skills Qualification Framework (NSQF) has been notified in December 2013, to provide an overall framework to set up vocational education programme. There is a greater emphasis on integrating skills in education and a renewed focus on vocational education in secondary education. It also demands of a revamp of our education system to make skill development an integral part of curriculum (see chapter 13).

In order to provide all these vocations first thing needed is expertise faculty in all these areas. So the training of personnel for instructional resource, should be organised by NCERT, SCERTs (State Council of Educational Research and Training), TTTIs (Technical Teacher's Training Institutes), RCEs (Regional College of Education), CDCs (Curriculum Development Cells), CIVEs (Central Institutes of Vocational Education), SCVEs (State Council of Vocational Education) etc., beside all these if Bachelor of Education (B. Ed) programme itself designed with some vocation's definitely the resource persons can be outputted.
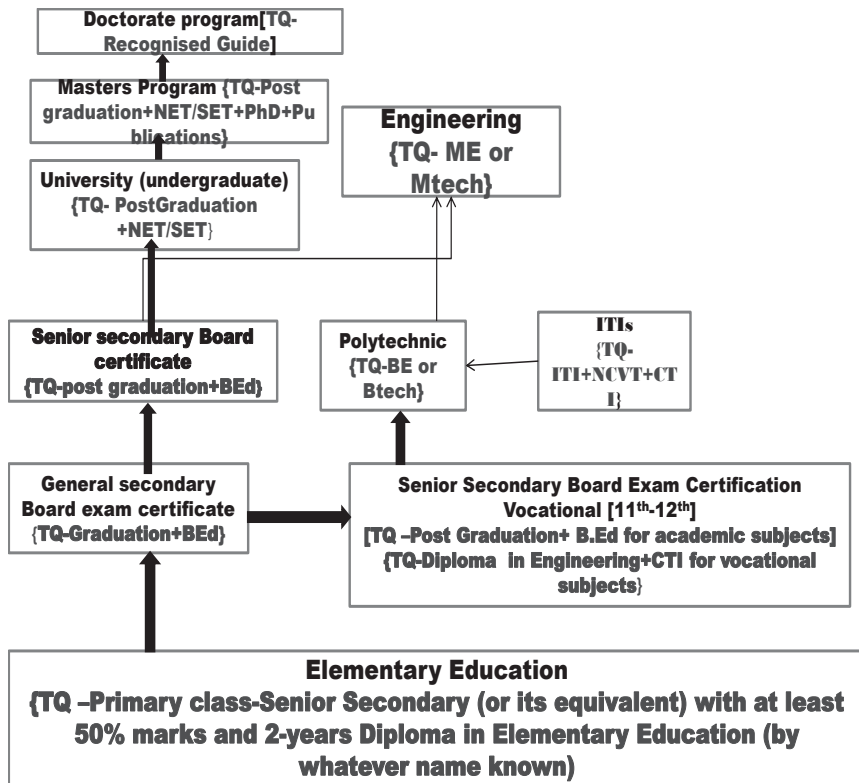
TQ (Teacher Qualification, NET (National Eligibility Test), SET (State Eligibility Test), ME (Master of Engineering), NCVT (National Council for Vocational Training), CITS (Craft Instructor Training Scheme)

Figure 3: Teacher Qualification required at different Levels of Education in India. Source: Skill development in India: The vocational education and training system report No. 22 World Bank (adapted by Ajithkumar)

3.1   Inceptions of Technical Teachers Training Programme

The Planning Commission notes (2011) that there is around 9,400+ institutes (ITIs, ITCs etc.) imparting training under the purview of Directorate General of Employment & Training (DGET)/ NCVT of the Ministry of Labour and Employment (see chapter 4). It is required that teacher/trainers in the public technical institutes complete a Crafts Instructor Training programme. Duration of the course vary from six months to three years, and entry to these courses can be made after Class 8, 10 or 12 depending on the trade in question (Planning Commission 2011). These courses are conducted across various vocational professions such as welder, machinist, and draftsperson among many others.

        National Institute of Technical Teachers Training and Research (NITTTR) was set up in the year 1967 by MHRD (Ministry of Human Resource Development), Government of India, to bring qualitative improvement in technical education especially in the northern region of the country. The institute caters to the needs of education and training of faculty and staff, curriculum development, instructional material development, and research and development of technical institutions (both degree and diploma level) in the northern region. NITTTR offers long-term programmes (ME/MTech) in six disciplines namely: Engineering Education, Computer Science and Engineering, Construction Technology and Management, Instrumentation and Control, Electronics and Communication Engineering and Manufacturing Technology. Short term courses and workshops are offered to support the training of new recruits and in-service personnel, in areas such 'emerging rural and appropriate technologies', 'research capability', 'instructional materials development', 'computer education'. NITTTR also consults with the State authorities to identify areas for polytechnic staff development.

        The AICTE (All India Council for Technical Education) offers several schemes and scholarships to encourage the professional development of aspiring or existing technical teachers, although these have strong academic and research oriented focus – e.g. 'Early Faculty Induction Scheme', 'Quality Improvement Programme' (QIP)', 'Faculty Development Programmers'. AICTE encourages professional development through NITTTR short courses as well.

        The DGET in Ministry of Labour& Employment is the apex organisation for development and coordination at National level for the programmes relating to vocational training including Women's Vocational Training and Employment Services. DGET also operates Vocational Training Schemes in some of the specialised areas through field institutes under its direct control. Development of these programmes at national level, particularly in the area concerning common policies, common standards and procedures, training of instructors and trade testing are the responsibility of the DGET.

Under its Schemes for Training of Trainers it conducts

- CITS
- Hi-Tech Training Scheme (HTS)

3.1.1   Craft Instructor Training Scheme

The CITS is operational since inception of the Craftsmen Training Scheme. The objective of the Craft Instructor Training is to train Instructors in the techniques of transferring hands-on skills, in order to train semi-skilled/skilled manpower for industry. A comprehensive training both in skill development and training methodology is imparted to the trainees.

Under the programme, instructors from Government and Private ITIs Centres established by industries under the Apprentices Act are provided training. Training in 29 Engineering trades is being offered in these institutes. To increase the seating capacity under Crafts Instructor Training Programme second shift w.e.f. November, 2012 has been started. During year 2010 government also allowed setting up of the Instructor Training Institute by State/ UT Governments, companies like sole propriety, private/public limited registered under companies Act, Societies and Trusts registered as per Act, and promoters of SEZs (Special Economic Zones). On completion of the training trainees are trade tested and awarded National Craft Instructor Certificate. In order to maintain quality and standards of Instructor Training, NCVT has approved separate standards for infrastructure and course curriculum. The institutes meeting the standards would be affiliated with NCVT (see chapter 13).

To make instructor training more flexible, modular pattern of Craft Instructor Training in place of conventional one year training has been introduced in CITS and Advanced Training Institutes (ATIs) with effect from session started from August, 2009. Under the modular concept, multi entry and multi exit provision has been made to make programme flexible so that instructor can take up training in any of these modules at any of the institutes as per his convenience.

A network of institutes, both under Central and State Governments, has been setup to extend vocational training facilities solely to women, which aim at stimulating employment opportunities among women of various socio-economic levels and different age groups.

3.1.2   Hi-Tech Training Scheme

HTS is one of the schemes of the erstwhile World Bank assisted Vocational Training Project. The scheme is now being continued for implementation with Government of India funding. The objective of the HTS is to produce trained personnel with the range of skills necessary to meet the requirements of industry, commerce and domestic consumers in the application of electronics, computer and the modern production system.

Short-term courses of two to three weeks duration in the Hi-tech areas like CAD/CAM, CNC & Control Technology, MC&PLCs are being implemented in the ATIs/Advanced Training Institute for Electronics and Process Instrumentation (ATI-EPI) for the industries/ Public Sector Undertakings/ Government organisations/ Trainers from the institutes/industries etc.

Since 2000-2001, ATIs have trained 1,500 persons under the HTS (DGET 2010).

3.2   New Initiatives of Staff Development in Technical and Vocational Education and Training

Rapid changes in technology call for change in courses and curriculum. The Ministry of Labour and Employment constituted Mentor Councils consisting of representatives from academia, industry and domain experts in 25 sectors. Mentor Councils recommend changes in curriculum, requirement of equipment, pedagogy and assessment of various courses that are being run by the Ministry in their respective sectors. It is required to train the existing instructors with revised/updated curriculum. Considering the quantum of efforts required to update the existing faculty and the stiff time constraints, use of Distance Learning through technology has been considered by the Ministry.

Extensive study was done by DGET to choose the right technology for distance learning. Certain criteria such as latest technology that provides extensive reach, high quality two way real time communications and easy scalability were kept in mind for selection. Communication between teacher and students through Internet using software such as A-VIEW was found to be the best solution for DGETs requirements.

A hub and spoke model is to be followed for delivery of the training. Training is transmitted from the hub and received at the spokes (remote centres). DGET plans to set up ten hubs and 200 remote centres spread across India.

For providing training, NITTTR develops its Programme Calendar on the basis of Training Need Analysis of the various stakeholders like Technical Institutions, Directorates of Technical Education, industry etc. The calendar so developed is shared with all concerned to enable participation of the right person for the right kind of programme, before implementation. Various kinds of programme are offered specially for the total development of teachers/supporting staff of technical institutions so that they can play multiple roles such as effective teaching, curriculum development, instructional material development, infrastructure development, student evaluation, guidance and counselling, community interaction and consultancy. The programmes are offered in a very flexible manner to suit the convenience of the clients with respect to duration (sometimes made modular) venue and timings. The Institute also invites faculty members from institutions of higher learning and industry for providing a variety of experience and exposure to the participant, on one hand, and for ensuring quality, on the other.

3.2.1   Short Term Training Programmes (STTPs)

The Institute Conducts STTPs typically of one week duration for in-service teachers and staff members of technical institutions, i.e., Polytechnics and Engineering Colleges all over India. These training programmes are spread over the entire academic year. AICTE has recognised the STTPs conducted by the Institute for consideration for the purpose of movement to higher grades under Career Advancement Scheme.

3.2.2   In-House Training Programmes

In addition to STTPs mentioned in the Programme calendars, the Institute also conduct clientele demand based STTPs.

3.2.3   Special Training Programmes

Tailor-made training Programmes/Workshops are conducted to cater to the special needs felt by the Directorates of Technical Education or organisations/ industry.

3.2.4   Collaborative Training Programmes

Such programmes are conducted in collaboration with technical institutions/ industries by sharing of resources. The Institute has organised such programmes in collaboration with national and international organisations like Colombo Plan Staff College, United Nations Educational, Scientific & Cultural Organisation, United Nations International Children's Emergency Fund, United Nations Development Programme and various reputed technical institutions.

3.3   *Latest Update in Craft Instructor Training Scheme*

From 2015, the ITI is under the new ministry, Ministry of Skill Development & Entrepreneurship. The Ministry is responsible for co-ordination of all skill development efforts across the country, removal of disconnect between demand and supply of skilled manpower, building the vocational and technical training framework, skill up-gradation, building of new skills, and innovative thinking not only for existing jobs but also jobs that are to be created. The DGET is appellate Directorate General of Training (DGT) and is under the Ministry of Skill Development & Entrepreneurship (Ministry of Skill Development & Entrepreneurship 2015).

      The structure of the training Programme has been converted into Semester system in place of Modular pattern, w.e.f. August 2013. The courses have been designed to impart basic skills and knowledge in the trades so as to prepare trainee for employment as a semi-skilled worker or for self-employment. As the emphasis is on skill building 70% of the training period is allotted to practical training and the rest to subjects relating to Trade Theory, Workshop Calculation & Science and Engineering Drawing. For overall personality development of trainees, a course on 'Employability Skill' has been introduced from session July 2012.

      All India Common Entrance Examination for CITS Courses is to be conducted from August 2015 Session.

      In order to create a pool of trained trainers from academic session 2015, CITS will be conducted in 25 institutes like ATIs, ATIEPIs (Advanced Training Institute for Electronics and Process Instrumentation), CITS, National Vocational Training Institute (NVTI), Regional Vocational Training Institutes (RVTIs) and Foremen Training Institute (FTI) and 17 Private Institute of Training of Trainers (ITOT).

      Total Seating capacity of the ATIs/ ATIEPIs/ CITS/ FTI + NVTI/ RVTIs + Private ITOTs is 11,052 in 2015 (data compiled from DGET report 2015).

4   Perception of Teachers regarding Effectiveness of Pre-service and In-service Teacher Training (Research Based)

In India, TVET teachers especially those recruited in private ITIs (there are 2,133 government run ITIs and 5,906 private ITIs catering to a student population of 1,115,628) (DGET 2010) are traditionally, technicians and engineer/technologist whose major training is concentrated on technical areas but with fewer being trained as teachers and trainers (see chapter 4). These modes of recruitment of trainers have not been without associated problems. With the National Policy for Skill Development and Entrepreneurship 2015, aiming to provide skills to 402 million people by 2022 (National Policy for Skill Development and Entrepreneurship 2015), the ITIs have got a definite push. The role of the government should be to provide the right environment for skill development to happen. An important step in this direction must begin with teacher preparation. Without qualified and well-experienced TVET teachers and trainers to plan for and execute TVET programs not much can be realised at the grassroots. There is a need for higher level trained TVET experts to provide the professional academic and research leadership in the field to support policy formulation, planning, development and implementation.

With regard to TVET teachers in India, there is no recent study to highlight the perception of TVET trainers about the pre-service and in-service training programme. Therefore, this study will focus on this aspect.

4.1   Objectives of the study

The general objectives of this study were:

- To investigate the capacity building of teachers and trainers in (TVET) in Maharashtra, India.
- To investigate the teacher professional development through in-service training.
- To study the competences of teachers and trainers in regard to ICT use.

4.2   Research Questions

The following research questions were set:

- Have the TVET trainers participated in initial and pre-service training?
- To what extent the pre-service training's programs meet the professional development of teachers and trainers?
- Is the ICT considered as a part of the current initial teacher training programs?
- To what extent the integration of ICTs in learning and teaching process improves competencies of TVET teachers?
- Is there re-training program for old teachers?

4.3   Data Sources

This research has depended heavily on primary data collected through structured questionnaire to obtain information from a group of teachers in ITIs. Personal interviews are conducted with policy maker and principals. The study was conducted between March to July 2015.

4.4   Sample

The population of this study is all teachers and trainers who are working in the vocational training centres and ITIs in Maharashtra state. This study includes trainers of ITIs and principals of Maharashtra State, Mumbai region.

Name of institute	Total faculty	Sample	Done pre-service training
St Joseph ITI, Mumbai	21	11	4
Fr Agnel ITI, Thane	11	8	2
Gurukul ITI and Vocational School, Mumbai	8	5	2
KJSomaiya ITI Mumbai	14	12	2
Joseph Cardijn Technical School, Mumbai	12	11	3
Total	66	47	13

Table 2: Size and Composition of Sample of Study. Source: own study

Semi-open ended interviews as a tool of data collection are also used for this study while interviewing the six principals and a policy maker.

4.5   Analysis of Data

Results of this study are interpreted using descriptive statistics (frequencies and percentages) so as to give general overview of the study variables. The data is arranged under three main themes corresponding to the objectives of the study. First theme is the current situation of training programs (Institutional setup, initial and in-service training programs), secondly, integration of ICTs on teaching/learning process and teachers ICT competence and thirdly, testimony of principals and Deputy Director, ATI, Mumbai.

4.6   Profile of the Technical and Vocational Education and Training Trainers

The TVET trainers in the study are between ages of 26 and 58 years, predominantly male (92%) and holder of Diploma certificate 67% and 33% were merely NCVT certificate holders. As much as the profile is one of youthfulness there is a good blend of maturity as 41% were reported to be in the ages between 40 and 60. The duration of teaching of five years or less at 66% and those greater than five years at 34%. All the respondents worked in private ITIs.

4.7   Initial and pre-service training of the Technical and Vocational Education and Training Trainers

Only 27% trainers, among the respondents had undergone pre-service training in ATI. The principals reported lack of availability of CITS holders. The principals reported inadequate number of ATI, inaccessibility of ATIs in terms of geographical location and difficulty in relieving staff for one year. 90% of trainers indicated that there were no incentives for professional upgrading that included paid leave, salary increments and promotions.
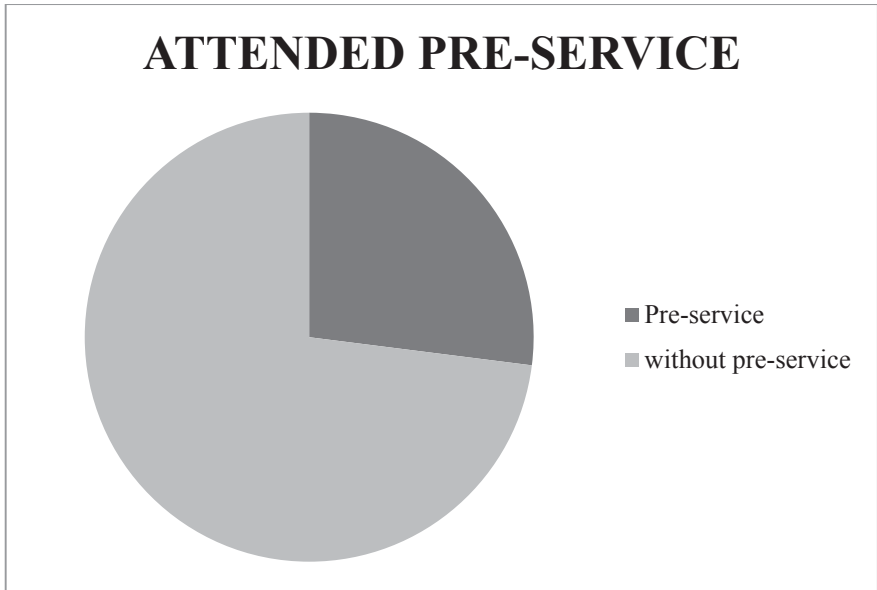
Figure 4: Data Representation of Faculty attended Pre-service Training. Source: research findings by author

4.8   *Pre-service Training Programmes and the Professional Development of Trainers*

90% felt the training method, practical training they received at ATIs, internship in industry, quality of instruction they received at ATIs during the pre-service training was excellent.
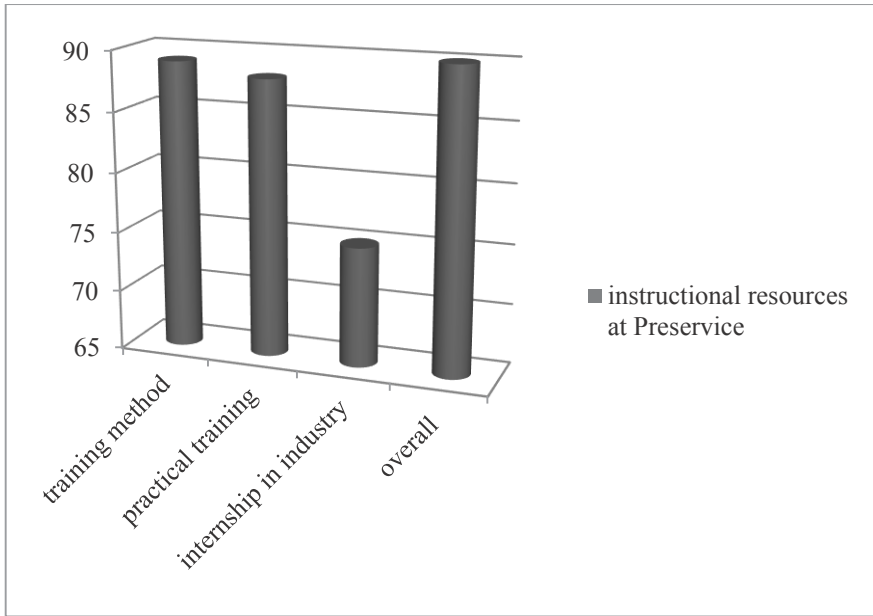
Figure 5: Representation of Feedback about the Pre-service Training Programme. Source: research findings by author

4.9 Information and Communications Technology and Current Initial Training Programmes

100% reported ICT was not part of the pre-service training programme. 100% acknowledged the importance of ICT. The deputy director of ATI, Mumbai reported that AVA (Audio Visual Aids) is part of the curriculum and this takes care of ICT.

TVET trainers constantly face changes in technology within their teaching domain. This aspect of the profession is inherent and every TVET trainers need to adapt to ensure that their trainees meet the needs of the labour market. The alternative is to gradually become irrelevant professionally.

Respondents indicated that they stayed up to date with changing technology through the internet 57%, workshops and seminars 41% and through research 2%. It is interesting that over half of the respondents proposed the internet as their avenue for staying in touch. It would be the most up to date in the materials avail-

able but more importantly allows for individually driven self-learning, clearly suggesting that respondents are already aware of the need to personally be responsible for their lifelong learning. When asked how they reflected new technology in their teaching, 60% of the respondents said they would wait for it to be reflected in the syllabus while 36% said they would update their teaching notes and 4% citing appropriate examples. Clearly the majority appreciates the need to adjust the contents of their teaching and not necessary wait for curriculum changes which have generally a longer revision cycle than the evolving technology.
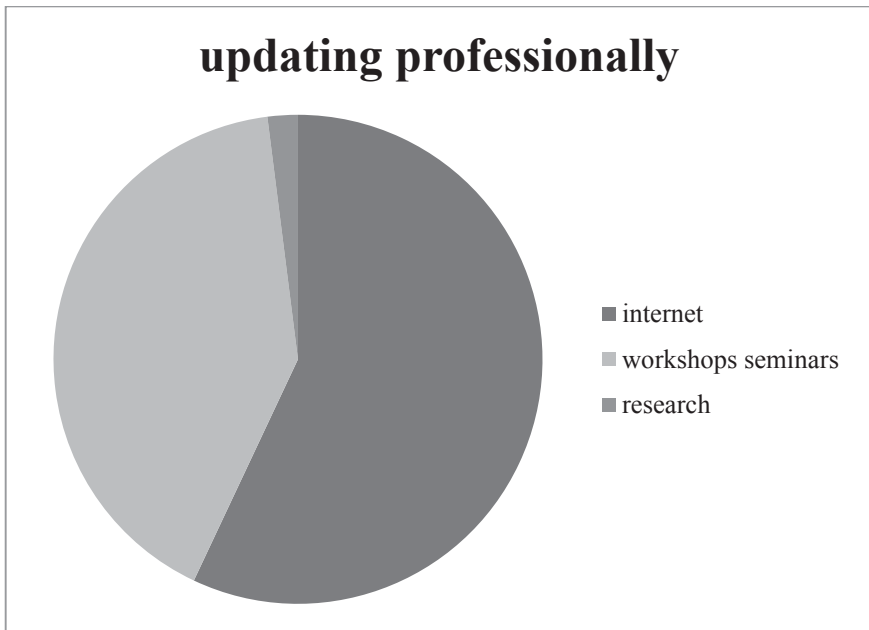
Figure 6: Representation of Methods of Updating Professionally. Source: research findings by author

4.10 *Further Training of Technical and Vocational Education and Training Trainers*

Since completing the initial training, not a single trainer was deputed for any refresher course at the ATIs. However, all of TVET teachers indicated that they had subsequently attended some kind of professional development programmes like

talk by experts, visit to industry, training at industry, personality development programme, soft skills training programme conducted by their institutions. 100% reported such professional development programmes were inadequate.

A large number of TVET trainers interviewed, 68%, reported that they had acquired industrial work experience of only six months or less; 26% had work experience of between 12 months and 24 months and 6% had work experience of over 24 months. The majority of the respondents worked at the tertiary level and was responsible for training learners preparing for direct entry into the workforce. All the trainers acknowledged the importance of industrial work experience. Without adequate initial work experience and regular updating a teacher will fail to reflect and demonstrate the appropriate work context to his or her students. Industrial attachment was also ranked the highest at 81% as the most effective way of staying in contact with industry. A full two thirds of the respondents indicated they felt more comfortable teaching theory than practical. This could be a reflection of inadequate industrial work experience.
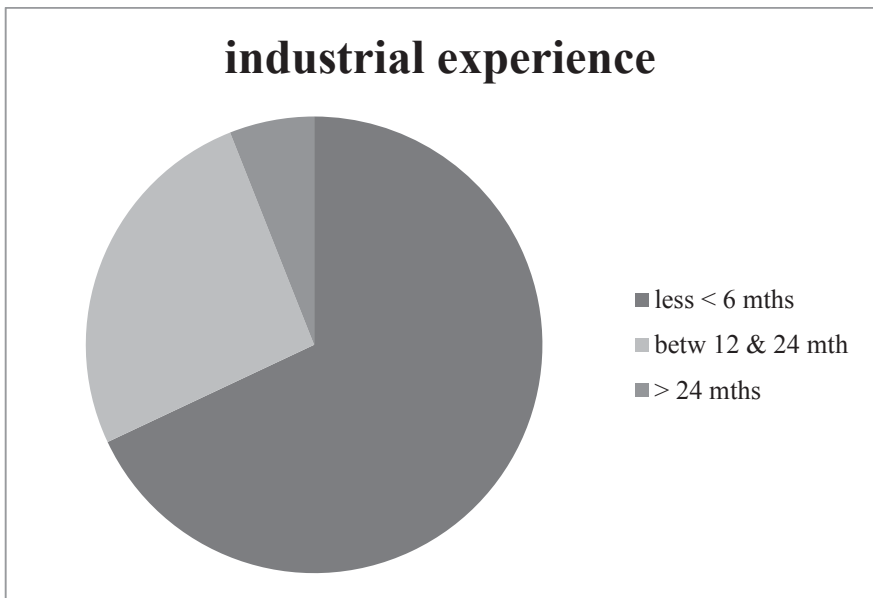
Figure 7: Representation of Industrial Experience of the Respondents. Source: research findings by author

4.11   Testimony of Principals about Staff Capacity Building

BOX – I

Mr. Mayur S. Yaul
Principal Parshuram Private Industrial Training Institute Nagpur, Maharashtra

"It's All Work & No Play For The ITI Instructors"
Indian economy has started growing and all the sectors of industry are registering growth and thus there is a huge demand of skilled man power. Industrial Training Institutes commonly abbreviated as ITI's are striving hard in meeting this demand of skilled man power by imparting training in all major sectors like Electrical, Mechanical, Civil, Electronics, as well as Hospitality management etc. ITI's are the backbone of the industry and if the support i.e. the instructors of these ITI's are not trained as per what the industry needs the whole system would slag. As technical aspects of the industry change, instructors must stay up-to-date on new technologies and techniques. In the current scenario, the inclination towards taking up an ITI instructor Job is less since way of looking towards the same is not as one looks towards teaching in a school, polytechnic or engineering college. The eligibility to teach in ITI is Diploma or ITI with CITS. Since the curriculum of ITI is practical oriented the candidate who has done ITI with CITS is apt for teaching in ITI's as they are aware of the practicalities during teaching an ITI student. Further the ITI instructors should be trained on Soft Skills & Personality Development Skills. They students who take up ITI courses need is the product the industry is going to take and they should understand how the language of Industry, soft skill & personality development training to teachers will enable them to impart the same to their students. Short term certificate courses that are relevant to their subjects should be made available for the instructors; this would keep them up to date with the market needs and enhance their skills, which would in turn help their students. Physical training (Sports) should be a part of curriculum as its all work and no play for the ITI instructors. The Industry and ITI's should work out a module together to impart training to the instructors about the current trends in the industry, which in turn can be imparted to the students. This would make the students industry ready i.e. the students when employed will not need a special training and can start working immediately. This would save industry's time, effort and money that is spent in training and induction of the newly employed. The best example of the same is the "GURU SHIKSHA" a first of its kind initiative to train teachers of ITIs located in Delhi NCR on troubleshooting, installation and demonstration of Samsung products including mobile phones and home appliances. A similar type of course is conducted by KEC International, Butiori Nagpur for enhancement the soft skills and confidence of the teachers in ITI's.

BOX - II

Testimony of Principal Mr. Amar Prabhu, St. Joseph ITI, Kurla

There are 21 ITI instructors in my institution of which all are NCVT trained. Only four have undergone CITS, the Craftsman Instructor's Training due to insufficient ATI (only six in India and one in Maharashtra) and limited seats in the ATIs. At St. Joseph we conduct robust selection process including written test, and personal interview, practical, demo lessons and psychometric tests. The teachers from the general stream have ample opportunity for pre-service training due to availability of D Ed, B.Ed colleges and the current TVET teacher-training situation is very bad. The principles of teaching, pedagogy is missing in the CITS training. Even the CITS curriculum needs to be revamped and ICT, pedagogy of teaching to be integrated in the modules of training. The ITI instructors are still using the traditional methods of teaching. We need 60:40 ratio of ICT integrated method and traditional method. Since in India we have limited number of ATI, it would be good idea to send the instructors for external training to countries like Germany, Japan though the feasibility is to be worked out. I personally feel the ATIs should provide training in the pedagogy and industry should provide practical training to the instructors. At ST. JOSEPH'S we also conduct regular in-service training for the faculty in the form of industrial training, industrial visits, and talks by experts, sessions on holistic development, experiential learning and also yoga, meditation. From my end, I take a personal initiative in upgrading the infrastructure required for the various trades at regular intervals so that students are equipped to learn and work with the latest equipment. This is evidenced with the fact that our Institute has installed the latest computers with additional software in line with the industry requirements. Visiting faculty is invited to train the students from the Draughtsman Mechanical batch in the latest software as per the industry demand.

We have also upgraded other trades like the Electrical, Mechanic Motor Vehicle by acquiring latest and modern equipment. Sometimes, due to funding problems, we invite our industry partners to help with providing the required equipment. I have also asked our industry partners to play a very active role in terms of imparting training in the latest technology so that the same is passed on to our students. Our Instructors have availed of training with the following industries:

- Grohe India Ltd. (plumbing)
- Ford India Ltd. (automobile)
- Toyota Kirloskar Ltd. (automobile)
- Schneider Industries Ltd. (electrical)

I have also introduced a practice to involve our students to avail of an On Job Training (OJT) for a period of two months with industry which will help students get hands on exposure with the working environment. They will get the benefit of the following.

- To get an additional OJT certificate from the industry.
- Most companies prefer to hire candidates with OJT experience when they look to hire a trainee and candidates with an OJT experience are preferred over candidates without.
- Candidates become more confident & are better equipped to face interviews.

BOX - III

Testimony of Mr. M.P. Nair, Deputy Director, Advanced Training Institute, Mumbai

The ATI is a field unit of the DGET, Ministry of Labour & Employment, Government of India. The history of the institute dates back to 1957, when it was started as Central Training Institute for instructors at Aundh, Pune. In the year 1963 it is shifted to present premises at Mumbai. The ATI at Mumbai conducts long term and short term courses. Short term courses are job oriented courses, conducted to upgrade and update the knowledge and skill of the technical personnel working in industries, ITI, Diploma holders, Fresh graduates or any one with technical qualification and sponsored by Industry or ITI. These short term courses are of one week to four week duration and conducted in 12 trades covering the fields of chemical, mechanical, electrical, electronics and instrumentation. The courses content of the short term courses are being revised, time to time, depending on the technological changes. Courses of 2015–2016 has been revised and new courses added in Advanced Welding, Machine Tool Maintenance and Unit Operation on the basis of feedback received from the participants and conducting need analysis from industries with the help of experts from industries.

The long term course is the Crafts Instruction Training Scheme (CITS). The objective of the CITS is to train ITI trainer in the techniques of transferring hands-on skills. The training is of one year duration, (two semesters) for the Government ITI trainer and sponsored private ITI trainers. Admission is offered twice in a year and from academic year 2015 centralized admission test is conducted. The intake capacity of this institution is 420 per year for the 12 trades available under CITS. The Institution also offers Tailor Made Courses i.e. need based training for industries, as per requirement of industry on their request utilizing the existing infrastructure of the institute. Tailor Made Courses in the fields of Metrology, Welding, Process Control Instrumentation, Hydraulics and Pneumatics, AC/DC Drives, Workshop Science and Skill, Multiskilling etc. have been conducted for Rites, Naval Dockyard Mumbai, Reliance Energy Ltd, Central Railway, BHEL, BEL, Fleet Maintenance Unit Naval Dockyard, BSNL, NALCO, MICO, BPCL, and various educational institutions. In addition I personally feel the ITI trainer training facility in India is good with now more institutions imparting training to the trainers and the curriculum adapting to the requirements of the changing world of work.

5   Conclusion

As India moves progressively towards becoming a 'knowledge economy' teachers and trainers will be the cornerstone in the whole process. Unless we rebuild their capacities, this new aspiration will not be achieved.

Based on the results of the survey the following important lessons can be gleaned.

▪ The average ITI trainers in the system are young or in mid-career with the majority being diploma holders. This has implication on the kinds of in service training or further education that could be organised to ensure that teachers are continually exposed to new technology, teaching strategies and industrial work experience.

- A good number of ITI trainers have yet to take advantage of existing opportunities in the country to further their professional training. The government and private management need to provide incentives and rewards for ITI trainers to access further training. This is absolutely critical in ITI teachers' profession due the rapidly developing technology. The principals showed reluctance in deputing trainers for in-service training and refresher courses as they are more concerned about curriculum transaction.
- Majority of the ITI trainers expressed the desirability of establishing active links between training institutions and the labour market to ensure the relevance of their training programmes. Unfortunately the same teachers reported weak links currently existed between their institutions and the labour market. Indeed institution heads and policymakers speak about this situation often. Much needs to be done to achieve the desired cooperation between institutions and the labour market. Clearly the initiative must come from the institutions reaching out to industry or the labour market.
- The majority of trainers had inadequate work experience, which is clearly an undesirable situation. With the reported weak institution-industry links, these teachers are unlikely to find viable and conducive opportunities for acquiring more work experience. Every effort should be made to ensure that the ITI trainers are exposed to a prescribed working experience in relevant environment.
- The curriculum change in ATI is lagging behind. This is clear from non-inclusion of ITC as a module and less emphasis on pedagogy of teaching.
- Without adequate initial training most of the trainers are not qualified in an academic sense and are not really equipped to be trainers. Added to this there is no practice of deputing trainers for retraining. The professional development programmes conducted by the ITIs are of little real value. Clearly, the capacity building of the trainers need to be given due priority.
- It was observed that nearly half of the respondents used the internet to access Information about new technology. This is important in cultivating the concept of lifelong learning and maintaining the relevance of ITI training and appreciating the developments of ICT. This is a positive development as curriculum changes tend to lag behind technological changes.
- The retraining of the TVET trainers is necessary to keep them fully informed of the developments in the job. Entirely new set of skills and new methodologies for delivery are emerging as among the greatest shifts in

paradigm in teacher educations but, none of the respondent who was sent for training once was deputed for retraining.

- ▪ The ATIs and other training institutions need to rethink their curricula, pedagogies, integration of the technology into curricula, to bring about the expected transformation and strengthen the standard of TVET teachers.

Currently, India does not have national body, which is responsible for developing competence in vocational education and training – although this need has been identified in various reports. However, there is a proposal (2013) for a feasibility study on the setting up a Centre of Excellence in Vocational Teacher Training in India under the auspices of the Australian India Education Council (with the NSDC [National Skill Development Corporation]).

References

Abot and Wood Report (1937): Education in India. URL: http://teachdelhi.blogspot.in/.

Banks, F. (1996): Approaches and Models in Technology Teacher Education, an Overview. In: The Journal of Design Technology Education. Vol. 1, No. 3, pp. 197-211.

Bird, M. (1997): Training of Teachers/Trainers in Technical and Vocational Education. In: Training of Teachers/Trainers in Technical and Vocational Education. Section for Technical and Vocational Education. Unesco. Paris: Unesco. Pp. 44-57.

Borko, H. and Putnam, R. T. (1995): Expanding a Teacher's Knowledge Base: A Cognitive Psychological Perspective on Professional Development. In: Guskey, T. R. and Huberman, M. (Eds.): Professional Development in Education: New Paradigms and Practices. New York: Teacher College Press. Pp. 35-66.

Callan, V. J. (2005): Building Staff Capability TAFE Queensland. Brisbane. Queensland: TAFE Queensland. Brisbane: Department of Employment and Training.

Chappell, C. and Johnston, R. (2003):Changing Work: Changing Roles for Vocational Education and Training Teachers and Trainers. Adelaide: National Centre for Vocational Education Research.

Cobb, J. (2000): The Impact of a Professional Development School on Pre- service Teacher Preparation, In-Service Teacher Professional, and Children's Achievement; Perception of in-service Teacher. In:Action in Teacher Education. Vol.22, No. 3, pp. 64-76.

De Leon, G. A. (2001): Higher Education Challenge: New teacher education models for a new century. New York: Carnegie Corporation of New York.

Dickie, M.; Eccles, C.; Fitz Gerald, I.; McDonald, R.; Cully, M.; Blythe, A.; Stanwick, J. and Brooks, L. (2004): Enhancing the Capability of VET Professionals Project. Brisbane: Australian National Training Authority.

DGET (2010): DGET Report. URL: http://www.dget.nic.in/content/innerpage/overview-cits.php.

DGET (2015): DGET Report. URL: http://dget.gov.in/content/training/training-providers--employers.php.

Duke, D. and Stiggins, R. (1990): Beyond minimum competence: Evaluation for Professional Development. In: Millman, J. and Darling-Harmmond, L. (Eds.): The New Handbook of Teacher Evaluation. London: Sage. Pp. 116-132.

Frankes, L.; Valli, L. and Cooper, D. (1998): Continuous Learning for all Adults in; The Professional Development School. In: McIntyre, D. J. and Byrd, D. M. (Eds.): Strategies for Career-long Teacher Education. Thousand Oaks: Corwin Press.

Gancer, T. (2000): Professional Development for Web-based teaching: Overcoming Innocence and Resistance. In: New Directions for Adults and Continuing Education, No. 88, Winter 2008.

Hartog Committee (1929): Education in India. URL: http://teachdelhi.blogspot.in/.

Härkönen, A. and Volmari, K. (2004): PROFF – Professionalization of VET teachers for the Future. Cedefop Panorama Series. Pp. 104.

Kallestad, J. H. and Olweus, D. (1998): Teachers, Emphases on General Educational Goals: a Study of Norwegian Teachers. In: Scandinavian Journal of Educational Research. Vol. 42, No. 3, pp. 257-279.

Majumdar, S (2011): New Challenges in TVET Teacher Education. In: Newsletter of International Institute for Capacity Building in Africa. Vol. 13, No. 2.

Ministry of Skill Development and Entrepreneurship (2015): URL: http://www.skilldevelopment.gov.in/training-providers.html.

National Institute of Technical Teachers Training & Research (2015): General Information. URL: http://www.nitttrkol.ac.in/about_nitttr.php.

National Policy for Skill Development and Entrepreneurship (2015): Policy Booklet by Ministry of Skill Development & Entrepreneurship.

National Skills Development Corporation (2013). In: Skill Matters Newsletter. September 2013, pp.8.

National Sample Survey Organisation (NSSO) Report (2005): Employment & Unemployment situation in India. Jan-June 2004. Govt. of India.

Nelson, B. S. (1999): Reconstructing Teaching. Interactions among Changing Beliefs, Subject-Matter Knowledge, Instructional Repertoire, and M. Z. Professional Culture in the Process of Transforming one's Teaching. In: Solomon, M. Z. (Ed.): The Diagnostic Teacher: Constructing New Approaches to Professional Development. New York: Teacher College Press.

Planning Commission, Government of India (2011): Report of the Working Group on Skill Development and Vocational Training for the X11th 5 Year Plan (2012-2017). URL: http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wg_skill_develop.pdf.

Reynolds, A. (1992): What is Component Beginning Teaching? A Review of the Literature. In: Review of Educational Research. Vol.62 No. 1, pp.1-35.

Sapru Committee (1934): Education in India. URL: http://teachdelhi.blogspot.in/.

Sargent report (1944): Education in India. URL: http://teachdelhi.blogspot.in/.

Shulman, L. S. (1986): Those Who Understand: Knowledge Growth in Teaching. In: Educational Researcher. Vol. 15, No. 2, pp. 4-14.

Schrembs, R. (2001): Teaching in the TVET System, Basics for Vocational Teachers in Developing Countries. Triga Verlag.

Stolte, H. (2009): Innovative Practices in TVET for ESD. The International Experts Meeting on Reorienting TVET Policy towards Education for Sustainable Development –A Building Block for Education for All Germany. Berlin: UNESCO-UNEVOC.

UNESCO (1999): ICT Competency Standards for Teachers. New York: Harper Collins publisher.

UNESCO (2004a): Unleashing Entrepreneurship: Making Business Work for the Poor.

UNESCO (2004b): Building Capacity of Teachers/Facilitators in Technology-Pedagogy Integration for Improved Teaching and learning. Bangkok. Thailand: UNESCO.

Wood, D. and Bennett, N. (2000): Changing Theories, Changing Practices: exploring early childhood teachers, professional learning. In: Teaching and Teacher Education. Vol. 16, pp. 635-647.

World Bank (2008): Skill Development in India: The Vocational Education and Training System (Report No. 22). The World Bank: Human Development Unit South Asia Region.

NGO Initiatives: Non-Governmental Organisations Initiatives

Uma Gengaiah

1 Introduction

Globalisation, that is, the opening up of economy (Chenoy 2013) and the implementation of neo-liberal economic policies in the 1990s created new waves in all the sectors in India. Especially, it generated workforce demand in manufacturing and service sectors like retail, media, automobile, hospitality, healthcare, IT and ITES, medical transcription, aviation and marketing. The market required skilled human power to function effectively. The 11th five year plan envisioned to provide skill training to potential employers by strengthening the existing infrastructure and creating proper institutional mechanism to address the needs of the market. Many have played an active role in transforming the unskilled/semi-skilled people into skilled ones. The union ministries, state governments, private sectors and Non-Governmental Organisations (NGOs), all are involved in the skill development programme. NGOs work (Chenoy 2013) especially among socio-economically weaker sections of the society and try to make them a part of skilled human power, thereby providing opportunities for them to overcome poverty.

The Ministry of Labour and Employment in India formulated a National Skill Development Policy in the 11th five year plan (2007-2012) period and it is being given priority in the 12th five year plan (2012-2017) period. The 11th five year plan provided three tier institutional structures for skill development. The government also wanted to identify the gaps in imparting skill training in the 12th five year plan and it initiated coordinated efforts to address the issue. Hence, developing a curriculum according to the demands of the industry becomes important. So, the government analysed each sector and its required skilled human power to train prospective employees. This paper focuses only on the role of NGOs in providing skill training. Before analysing that, the theoretical perspectives on the development of NGOs over a period and the role played by NGOs in the development sector has to be discussed.

2   Non-Governmental Organisations

In the modern development discourse, NGOs play a significant role in addressing the concerns of the socially and economically weaker sections of the population and they work closely with the disadvantaged to address their concerns. Various mechanisms are used by the NGOs to strengthen them (Kilby 2004). These mechanisms include creating space for the poor to raise their voice, enabling them to access public resources and making them aware of government schemes and programmes. These process adopted by the NGOs make the disadvantaged empowered (Narayan 1999; AusAid 2001). For example, one of the largest NGO in India, Action for Welfare and Awakening (AWARE) in Andhra Pradesh had formed 200 village organisations, bringing 23,000 hectares of land under cultivation and mobilised a volunteer force of 25,000 people by the late 1980s. This action challenged the powerful land - owning community in Andhra Pradesh (Clarke 1998; Cooperation with NGOs, ADB 1989). According to Patrick Kilby

> *"Non-Governmental Organisations are self-governing independent bodies, voluntary in nature, and tend to engage both their supporters and constituency on the basis of values or some shared interest or concern, and have a public benefit purpose." (Fisher 1997; Lissner1977; Salamon and Anheier 1999; Salamon et al. 2000; Vakil 1997)*

NGOs working in the development sector consider themselves as part of the society and so they play empowering and representative roles (Abramson 1999; Gaventa 1999; Nelson 1995). NGOs are not membership-based organisations (Fowler 2000), but they are governed by self-appointed board members and have small regular staff based on religious or ethical values (Thomas 2004). Since they generate funds from different sources and work for the weaker sections of the population, they generally lack downward accountability to the constituents (Mulgan 2003; Najam 1996; Salamon, Hems and Chinnock 2000). The driving forces behind NGOs' activities are the values they pursue and the work they undertake to improve the livelihoods of the weaker sections of the society (Edwards and Sen 2000; Fowler 1996; Gerard 1983; Lissner 1997). As it has been said, "(…) [NGOs are] the heartland of the social economy since they are marked by distinctive value systems (…)" (Paton 1993). "NGOs are value-base participants representing the concrete interests of marginalised groups" (Nelson 1995). Lissner defines NGOs values as:

> *"(…) the basis on which agency [NGO] policy makers interpret trends and events. It emanates from religious beliefs, historical traditions, prevailing social norms, personal experiences, and similar basic sources if human attitudes (…), [they] cannot be directly translated into concrete action because of their degree of abstraction (…).yet they are still sufficiently*

> *clear for the policy makers to take their bearings from them when deciding on the fundamental direction of their agency." (1997).*

The above-mentioned quote tells us how NGOs look at the world from a certain philosophy. With regard to their evolution, Korten (1990) classifies NGOs into four generations. First generation NGOs were committed to relief and welfare activities and they addressed the immediate needs of the community. The second generation NGOs encouraged small scale self-reliant local development projects. They could prove their ability to the donors. Stronger sustainability emerged in the third generation NGOs and they influenced public policy also. In the fourth generation, NGOs are largely involved in community organisation, mobilisation and coalition building and they aim for long-term structural change at the national and international level. Based on Korten's classification, one may understand that there were generational changes in the NGOs activities. One may also need to know the activities of the NGOs based on their relationship with the state, donors and community.

In the developing world like India, philanthropic foundations, church development agencies, academic think-tanks and other organisations focusing on issues like human rights, gender, health, agricultural development, social welfare, environment, and indigenous peoples are also part of NGOs. Apart from these, private hospitals, schools and religious groups do philanthropic works. But, they are not identified as NGOs. People's organisations (POs) and membership-based cooperatives are also not identified as NGOs (Clarke 1998; Carroll 1992).

The following factors have been identified for the emergence of large number of NGOs, especially in the developing countries. The first and foremost reason behind the increasing many NGOs in the southern states are the increasing percentage of aid by the Northern NGOs. The second reason is the emergence of neo-liberal economic policy. In the neo-liberal economic climate, the role of state has been reduced to address the socio-economic condition of the population. At the same time, the pressure from the member states to address the concerns of the weaker sections of the population made the developing countries involve various actors especially NGOs. Thirdly, multi-lateral and bilateral agencies provide considerable aid to the NGOs to work at the grassroots. The data gathered by Carothers in the 1990s, showed that the United States (US) is spending more than US$ 700 million in a year to implement democracy programmes in the countries located in Eastern Europe - former Soviet Union, Asia, Latin America and Sub-Saharan Africa. Economic recession in 1980 and the NGO working in close proximity with the communities at that time is also a reason why governments of developing countries started recognising NGOs. They also collaborate with the government to implement the some programmes (Carothers 1999).

In India, NGOs are formally registered bodies. They are not government-based. NGOs are non-profit/public charitable organisations and can be registered as trusts, societies, or private limited non-profit companies, under section-25 Companies Act. Non-profit organisations in India (a) are independent of the state; (b) are self-governed by a board of trustees or 'managing committee'/governing council, comprising individuals, who generally serve in a fiduciary capacity; (c) benefit others, generally outside the membership of the organisation; and (d) are 'non-profit-making', in as much as they are prohibited from distributing a monetary residual to their own members (Lewis and Kanji 2009). NGOs in India can be classified based on their purpose, philosophy, expertise, programmes, approach and scope. NGOs may also called operational/advocacy NGOs. Some may operate at international level, some at national level and some at local level.

In India, after the independence, the state concentrated more on welfare programmes and introduced a number of measures to address the needs of the citizens. Citizens could avail the social benefits free of cost. The state legitimized its intervention due to the mass poverty and backwardness (Scott 1998). Based on the Gandhian principle of Constructive Programme, Gandhian ideology-based organisations like *Gandhi Peace Foundation* (GPF), *Khadi and Village Industries Corporation* (KVIC) and the *Association of Voluntary Agencies for Rural development* (AVARD) were promoted by the state, after independence, to closely work with people for many issues - basic education, health, agricultural programme, rural development. These organisations were heavily supported by the five year plans. The first Prime Minister of India, Jawaharlal Nehru fully supported and promoted community-based organisations (CSOs). Nehru's death and the emergence of Indira Gandhi as the Prime Minister brought many changes in the country, like centralisation of power, price rise, emergence of regional parties, congress losing power in many states and Jayaprakesh Narayan (JP) social movement. Being a Gandhian, JP opposed the Indira Gandhi government for its authoritarian attitude and urged all Gandhians to come forward to oppose the government. This non-violent protest was called *Sampurna Kranti* or total revolution. JP was supported by another Gandhian Moraji Desai. Gandhian NGOs - GPF and AVARD - also protested against the Indira Gandhi regime. Indira Gandhi imposed emergency on 26th June 1975. It lasted for 21 months. During this period, voluntary organisations faced many restrictions and the government promoted only apolitical organisations. The Foreign Contributions Regulation Act (1976) was enacted to monitor political associations and the funds they receive from foreign sources (Biswas 2006). After the emergency period was over, Moraji Desai came to power and he encouraged voluntary organisations (Sahoo 2013). His government allocated Rs. 500 million to NGOs and added section 35 CCA to Income Tax Act,

which allowed corporations to deduct donations to NGOs from their taxable income (Kudva 2005).

Large scale social movements in the late 1960s and 1970s like JP movement in India fragmented and became small NGOs (Human Development Report 1993; OECD 1998; Lehmann 1990).

In India, Sethi argues,

> *"A withering of formal representative institutions has fuelled the explosion in NGO numbers. Since the mid-1970s, political parties have increasingly dismissed significant sections of the dalits (scheduled castes), tribal groups, other backward castes (OBCs), and the poor and landless, as unorganisable, while trade unions have failed to penetrate informal sectors of the economy." (1993)*

Hence, NGOs filled the vacuum created by political parties and trade unions. Like pressure groups, NGOs also exerted pressure to influence the public policies (Clarke 1998).

Rajiv Gandhi too encouraged NGOs and increased the funding. His government provided Rs. 2.5 billion to NGOs in the social sector (Sahoo 2013). One million registered NGOs are in India. Among them around 100,000 identify themselves as development organisation directly involved in empowering economically weaker sections (Elliot 1987; Rajasekhar 2000; Vakil 1997).

Through the 1970s and early 1980s NGOs emerged as institutions for development in India. However, modern development discourse expects NGOs to play a critical role in making the socio-economically weaker sections of the society, socially economically and politically empowered ones (Jorgensen1996; Krut 1997; Nelson 1995; White 1999; World Bank 1996). Feminists involved rural women in the conservation of nature and natural resource management and this led to the formation of environment – related NGOs in the 1980s. These NGOs were also involved in women empowerment. During this period, there were lots of changes in the economic sphere and in the perspective of developmentalism. The period also witnessed the introduction of neo-liberal economic policies and the slow withdrawal of nation-state in the process of development.

International development aid was also increased. Favourable government policies in India helped NGOs increase their presence in development. In the context of globalisation and neo-liberal economic policies, international agencies like the World Bank and International Monetary Fund (IMF) insisted structural reforms and encouraged government to involve NGOs in development work. They felt that the existing government structures were incompetent in implementing programmes at the grassroots level due to its over-bureaucratic nature and lack of experience in social mobilisation (Biswas 2006; Ghosh 2009).

India adopted structural adjustment policies in 1991 and the government brought many reforms. The most significant reforms were transparency, account-ability, equity in accessing all government programmes. The state slowly with-drew many social welfare programmes and introduced many rights-based pro-grammes. The state also collaborated with civil societies, market and transnational organisations to address the concerns of the society. As per the conditions imposed by the World Bank and IMF for receiving aid, India promoted (apolitical) the NGO sector as part of the good governance agenda (Jenkins 2005). NGOs promoted neo-liberal economic agendas like self-help, entrepreneurship and social mobili-sation (Jakimow 2009). The private sector – multi-national and transnational cor-porations – participated in social development through their Corporate Social Re-sponsibility (CSR) programme.

The Government of India introduced Swarnajayanti Gram Swarojgar Yojana (SGSY) scheme in 1999. It provided opportunities for NGOs to mobilise women and marginalised groups and make them participate in the economy (self-help groups). The main objective of the SGSY programmes is to ensure assisted poor families, who are above the poverty line (swarozgaris), an applicable sus-tained level of income over a period of time. This can be achieved by inducting rural poor into self-help groups (SHGs) through social mobilisation, training and capacity building and creating provision for income generation assets (GoI 2004) (see chapter 12). The scheme concentrates on establishing micro-enterprises at grassroots level by encouraging activity clusters, providing infrastructure support, technology credit and market linkages (Shylendra and Bhirdikar 2005). The work-ing of the 10th five year plan mentioned that social mobilisation is a key factor in SGSY programme. And they recognised that NGOs were better equipped in doing this than the government agencies (GoI 2001).

Identifying skill gap and providing skill training to unskilled and semi-skilled workers is different when compared to self-help programmes due to vari-ous reasons like target population, employable skill training, creating opportuni-ties for employment, identifying training centres, creating partnership with indus-tries and creating requisite mind-set on skill development. Many NGOs in almost all parts of the country are involved in skill development initiatives through Vo-cational Education and Training (VET). (According to National Skill Develop-ment Corporation, 2014 there are 150 training partners, both for-profit and not-for-profit ones). Since NGOs work closely with the society, Technical Vocational Education Training (TVET) could be made accessible to socio-economically weaker sections and youths in rural areas. In order to analyse the role of NGOs in skill development, this paper has taken two NGOs for study and has analysed their activities – *Peace Trust* from Dindigul, Tamil Nadu, a southern state in India and *ETASHA,* which works from New Delhi. Based on that, this paper will look in to

the role of NGOs in skill development and the challenges they may encounter in imparting the same. The activities of NGOs in skill development were analysed using good governance principles – accessibility, availability and equity.

3 Skill Development, Governance and Non-Governmental Organisations – Methodology

The government of India recognised the significance of good governance as deprivation and inequality continued due to poor governance (GoI 2002a). According to the government, good governance means the

> *"(…) management of all such process that, in any society, define the environment which permits and enables the individuals to raise their capability levels, on the one hand, and provide opportunities to realize their potential and enlarge these of available choices, on the other." (ibid.)*

Therefore, it is imperative to follow governance (good governance) principles, if any institution-government, corporations or NGO-working for a community wants to improve their lives and livelihoods. Since the NGOs are working for improving a community by imparting skills to low/semi-skilled people and transforming them into an employable population in the market, this paper has used good governance principles as a framework to analyse the skill development activities of NGOs. Based on the analysis of these two NGOs, this paper attempts to provide a few policy prescriptions for the NGOs to make their skill development activities more result-oriented and sustainable. The NGOs, *Peace Trust* and *ETASHA,* were chosen based on purposive sampling method.

The two NGOs were chosen because they have worked specifically with the youth to make them skilled and employable. *Peace Trust* was established in 1984 at Dindigul. It has been engaged in social work for several years, helping the child labourers get released from hazardous industries like tanneries and cotton mills. It works particularly in rural areas, rehabilitates child labourers and provides skill training for them (Peace Trust 2014). *ETASHA* was started in 2006 and it believes that by helping young people acquire new skills by giving them access to relevant vocational training and later connecting them to employers, they enable them to take control of their careers and lives and help their families break out of the cycle of poverty (ETASHA 2015). The skill development activities of both of these NGOs were documented by interacting with the heads of these institutions through a semi-structured questionnaire. The activity reports of these NGOs were thus analysed.

National Skill Development Corporation (NSDC) has completed the skill gap assessment study for the States of Tamil Nadu and Delhi. The skill gap identified by the in Tamil Nadu and Delhi are also considered for discussion (see chapter 7 and 13).

4   NGOs' Initiatives on Skill Development

Several NGOs all over the country are involved in skill development. The NSDC has prepared a report based on the need for skill development in each state in the country, except Bihar and Chhattisgarh. This paper first discussed the activities of *Peace trust* having experience in the development sector for nearly two decades for the release and rehabilitation of child labourers and in providing skill training for rural youth. Peace Industrial School (PIS) was launched by *Peace Trust* in 2000 with financial assistance from *Indiska Magasinet*, and it provides technical education for former child labourers and underprivileged youth thereby enabling them to get suitable industrial employment and encourages self-employment.

Peace Trust has been providing quality skill training for positions like:

- Electrician, Fitter, Industrial Tailor, Embroiderer, Fashion Designer
- Computer Operator, Data Processor, Desktop Publisher
- Fire & Safety Managers, Industrial Safety Mangers/Home Appliances Maintainer
- Psychologist, Counsellors, Trainers, Residential Warden & Secondary, Higher Secondary Teachers
- Watershed Mangers, NGO Project Managers
- And provides coaching for government, bank, public sector jobs

PIS has so far provided technical education to 1,076 youth in various technical courses between 2000 and 2013. As many as 734 youths have got gainful employment in the nearby garment factories, textile industries, computer and browsing centres, petrol stations, rental shops and schools (including government ones) etc., and 214 youths have started their own micro and small enterprises. These technically qualified youth are currently earning an average annual income of Rs. 96,000 which is recurring, stable and sustainable. They have thereby improved their standard of living. These youths, if not trained, would have become unskilled labourers and toiled for meagre income, which is also not permanent (Peace Trust 2014). Similarly, *Indiska's* support for the Peace Garments and Handicrafts Centre is also significant because it continuously provides livelihood for 60 women and has capacitated 250 women from the drought-prone rural villages of Dindigul.

ETASHA receives funds from corporate organisations, international funding agencies and private banks (gets covered under 'Corporate Organisation'). Its branches in Delhi provide various types of vocational training. They have listed out the areas where they have decided to do this. They operate skill training in five models to reach target groups.

They run dynamic training hubs named Career Development Centres (CDCs) in the slum areas of south Delhi, from which their community mobilisation team engages with local youth and their families, community and religious leaders and other NGOs. They work with the students of other vocational training providers to improve their employability skills through their programmes and also manage students' placement. They also collaborate with other NGOs to train the youth in their communities. They have opened temporary satellite centres in local areas contiguous with but not close enough to their CDCs, to run programmes accessible to local youth. They run programmes from rented premises or an NGO-run school. They closely work with industries to identify their specialised skill requirements and based on that they design and deliver joint programmes for youth from low socio-economic communities. For example Project *Indradhanush*, a collaborative project with Nippon Paints to train youth as colour matchers for the Automotive Paints Industry, was initiated in November 2011. In all their programmes, they incorporated compulsory spoken English course, computer skill and self-confidence course. At the end of the programme, during the last week of each session, the learners undergo rigorous practice and preparation to equip themselves for placement into an organised sector. *ETASHA's* placement team will connect the prospective employees to potential employers by arranging interviews and supporting them through the process until placement is made.

5   Analysis of the NGO activities

Need

With regard to the need, Peace Trust provides skill training according to the study conducted by NSDC. The courses offered by them are also in line with the NSDC's latest report on skill gap assessment from 2012-17 to 2017-22 (NSDC 2012). Tamil Nadu will require 1.9 million skilled human resources and 1.5 million semi-skilled human resources by the end of 2017. But the current availability is 1 million and 0.2 million in each category respectively. The Peace Trust did situational need assessment study in Dindigul to find out the problems regarding acquiring education and employment. They also studied the needed intervention to make the youth employable. Before starting their skill development programme, it conducted a scientific field study. According to the study, large numbers of children

are forced to work in the agricultural field or take up small low-paid unskilled jobs after spending ten hours in school. Most of the children achieve basic literacy, numeracy and smattering of English while in school. The findings of the study were incorporated in the project proposal for skill training. They found that lack of mentorship, lethargy and fear of competition lead many youth to discontinue their studies. Based on the needs and requirements for local level and skill requirement for macro level (state), courses are identified and developed. They ensure that the courses fulfil the skill requirement of various sectors such as automobile, construction, food processing, textiles and retail industry even in the developed districts of Tamil Nadu. The strategy of Peace Trust clearly indicates the accessibility and availability of courses based on need (Peace Trust 2014).

According to the NSDC study, there is sufficient supply of skilled workforce through 2012-2017 and 2012-2022 in Delhi (NSDC 2012). But, there is shortage of semi-skilled workforce. The availability of skilled workforce also depends on the availability of training institutes and the number of people willing to enrol in these training institutes. The skill gap report of Delhi mentioned the areas that needed to be covered. The syllabus for the manufacturing sectors needs to be revised. The government should establish training institutes for retail and healthcare industry because there are none now. There is workforce shortage in retail, hospitality, automobile and auto parts manufacturing and metallic products manufacturing. The demand for workforce for construction and domestic help in Delhi is noteworthy. The existing study has noted labour exploitation in these sectors. The government needs to bring appropriate institutional mechanisms to avoid exploitation. Acting according to the skill gap report, ETASHA provides skill training in retail sector with a special emphasis in their curriculum for language and computer proficiency (ETASHA 2015).

Equity

With regard to equity, Peace Trust targets economically and socially underprivileged groups. Trained youth are placed in different sectors. According to the data 734 youths employed and 214 trained youths started their own employment.

According to ETASHA, skill training facilitates an entry point for the disadvantaged into the organised sector and to bring them into mainstream society. Their target trainees are mainly from slum and slum resettlement colonies in Delhi, who have migrated from rural areas and some of their parents are from agricultural background. They also target small vendors and service providers in the unorganised sector. If we have a look at the profiles of their trainees, they are either school drop outs, or are working to support their families while continuing their education. They ensure that all the trainees looking for work must be 18 at the time of

completing a programme and must have cleared 10th standard. Both Peace Trust and ETASHA targets school drop outs from economically weaker sections of the society.

Accessibility and Availability

Having a look at the skill training programmes of both the NGOs (Peace Trust and ETASHA), their activities are accessible by all the socio-economically weaker sections of the society. ETASHA is running four centres. Three are located in Delhi and one in Gurgaon. They also collaborate with other NGOs in North Delhi. They collaborate with government Industrial Training Institutes (ITIs) to train the learners and make them employable (see chapter 4). ETASHA's syllabus stresses the significance of combined development. Along with skill development, they focus on confidence building and inter and intra personal skills. They believe this will assist underprivileged young people to move into an organised structure, where they will face situations they might not have come across before, thereby enabling them to interact successfully with people from all sections of society. The course fee of Peace Trust is fixed low by considering socio-economic condition of the learners. Also the trust arranges loans for economically, socially backward students. After placing the learners, it follows up if they are progressing in their careers. During the admission period, they motivate learners. The institute environment is inclusive in nature. In ETASHA, a learner's average family income is Rs. 5,000 per month or less than that. They learners have attended low-end government schools and generally reside in slum or slum resettlement colonies around the capital, where crime is common. Typically, such colonies have major power and electricity shortages throughout the summer and sanitation is poor. ETASHA branches in Madanpur Khadar and Tigri, both in South Delhi, are located near slum colonies and are community training hubs. It was able to place 71% of their learners in formal employment in 2012 in sectors like, designing and architecture, financial services, manufacturing and travel. Trainees' starting salaries ranges from Rs. 5,000 to Rs. 15,000 per month, and some organisations offer free travel, subsidised food, life and health insurance.

Partnership with other agencies

With regard to partnership with government and other agencies, Peace Trust carried out a survey involving the government and community to identify the needs of the society. This programme was funded by *Indiska Magasinet*, Swedish business firm. Apart from financial assistance by an international agency to run the programme, it collaborated with British Council, Chennai, BBC Radio Station,

London and Deutsche Welle Radio for communicative English. It also has MOUs with deemed universities, autonomous organisations and institutions under central government ministry.

       ETASHA is also supported by corporate like HDFC Bank's Employee giving Programme, TATA Communications Ltd. funding for vocational training in Delhi, Bain and Company (Project Sarthank), Accenture's Employee giving programme through Charities Aid Foundation. Other supporters are Amdocs', FICCI Ladies Organisation and GAIL India, United Nations Office on Drugs and Crime, Nippon paints, Barclays Shared Services, Aga Khan Development Network, Maruti Suzuki, Tech Mahindra Foundation and JCB India.

Curriculum and Course fee

The shortest of ETASHA's skill development programme has 220 hours of inputs. It is designed to develop a positive attitude, hard and soft skills and finally place young people into entry level careers. Peace Trust has incorporated more practical components in their curriculum rather than theoretical input. After consulting all the stakeholders, both the NGOs have designed the syllabus according to the needs of the industry. Both the NGOs have collaborated with industries and the government to utilise the space of ITCs and ITIs and to mobilise requisite fund to support the programmes. They design the curriculum by themselves. They target school drop outs and youth working in the unorganised sectors. Along with sector-specific syllabus, they give more emphasis on individual development and communication skills. As far as the fee structure is concerned Peace Trust minimum fees of Rs. 2,000 and maximum Rs. 4,000, depending on the nature of the Course and the socio-economic background of the family. A learner from economically lower stratum gets fee exemption. ETASHA's course fee is also much more affordable for socio-economically weaker sections at Rs. 250 per month.

6   Sustainability of NGO activities

Having a look at the Skill development activities of two NGOs, they depend on external sources like private banks, corporations and International NGOs for funding. Funding from external sources is time-bound. While NGOs have the responsibility to keep the course fee low to encourage weaker sections of the society to enrol themselves in the courses, they should also provide quality skill training. Along with generating funds from student fee, they are in a position to augment resources from various sources to make their activities sustainable. Industry collaboration may provide sustainability. Social Impact Assessment is one such activity in which NGOs may assess their activities to make them sustainable.

Frank Vanclay defined:

> *"Social impact assessment includes the process of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring more sustainable and equitable biophysical and human environment." (2003)*

Skill development programmes are carried out by NGOs as per government policies and market requirements. It is done to bring intended and unintended changes among individuals and society. By developing appropriate indicators, NGOs activities can be assessed so that they can enrich their syllabus according to the changing needs of the market and society and can be followed by other NGOs.

7   Challenges

Skill Development is considered as an employment-oriented course/programme and not education. There is a need for concerted action in several key areas to ensure that skill training takes place in a demand driven manner. The curriculum for skill development has to be updated continuously to meet the demands of the employers/industry and it has to be aligned the available self-employment opportunities. Accreditation and certification system has to be improved. The existing national-level institutions may be equipped with providing needed information on skill inventory and skill maps on a real time basis. A sectoral approach is required for this purpose with special emphasis on those sectors that have high employment potential. NSDC (2012) has done a study and found the skill gaps at the national and state level in India. Peace Trust in Tamil Nadu as well as ETASHA in New Delhi has developed programmes for skill development based on this study conducted by NSDC. Other NGOs involved in skill training can adopt the same kind of programmes. This will help to achieve the 12th five year plan target. The main

challenges to the NGOs are to provide certification and quality training based on National Vocational Qualification Framework (NVQF). Since the NGOs are closely working with the community, they can identify if a potential candidate is a dropout or a semi-literate or has completed school. India is likely to achieve 100% youth literacy by 2015. NGOs can conduct skill development programmes for them to make them a part of mainstream economic activities.

As per the CSR programme, companies have to spend 2% of their average net profit on CSR activities (CII 2013). Companies invite proposal from NGOs for this. ETASHA generates funds by aligning with the corporate. Since it regularly interacts with the companies, the NGO is able to place their learners after the training. Other NGOs can follow this too. The lack of required technical infrastructure and trained teachers in ITIs, ITCs and Polytechnics are challenge that the NGOs have to face to provide quality education to the learners (see chapter 9). For this they have to generate funds from external sources to improve the infrastructure. NGOs also actively participate in forming SHGs. For an example *Myrada,* a NGO (Fernandez 2008) is involved in mobilising unskilled women in SHGs. SHGs are trained in small entrepreneurial activities like running food canteen, production of packaged food items, handicrafts. By observing the activities of both the NGOs, we can see that the socio-economic condition of the learners becomes a priority for them. Governance principles like need, accessibility and availability are also given priority. Another area NGOs need to provide attention is bringing gender perspectives into their work. Human development indicators have identified gender differences in accessing resources in the areas of health, education (see National Human Development Report, 2001, for detailed educational status of girls, boys, men and women). Considering this, NGOs need to collect sex disaggregated data to encourage everyone to access skill development programme. The existing data shows that girls have a higher percentage in being school drop outs. Lesser number of women has the opportunity to do college education and higher studies. Skill development can act as an alternative to higher education and women will be able to do production-related work. Also, gender-sensitive awareness courses can be incorporated in the skill development curriculum. As much as 60% of Indian economic output is from informal sector (World Bank 2008; ILO 2002). Workers from informal sector are unskilled or semi-skilled, without certification (Pilz et al. 2014). By targeting unskilled workers in the informal economy and giving them training, NGOs can bring them into formal economy (see chapter 12). The important thing is to not only expand access, but also to provide quality TVET for all. NGOs depend on external funding sources for running skill development programmes. Many NGOs are located in rural and semi-urban areas unlike ETASHA. They lack requisite infrastructure to provide skill development. NSDC's proposal in 2012 (NSDC 2012) for NGOs involvement in skill development in formal and

informal sector states that they provide funds only for skill development and not for infrastructure development. If NGOs do not have proper infrastructure, they need to depend on external sources for practical classes. They need to bear the cost for it. Because of this, many NGOs hesitate to run skill development programmes. In situations like this NGOs can tie up with ITIs and ITCs for providing TVET training. NSDC prioritised 20 sectors (ten industry and ten services) and sought proposals from NGOs to impart training. The proposal clearly stated that the NGOs should prioritise unorganised sector. After implementing neo-liberal economic policies, higher educational institutions like engineering colleges, nursing training institutes, teacher training institutes, Arts and Science colleges have increased manifold. Currently, there are 621 Universities, 32,974 Colleges and 11,144 standalone institutions all over the country (Ministry of Human Resources 2013). NGOs can tie up with these institutions for providing training to people working in the unorganised sector. TVET training can be organised after college hours or during weekends. Though there are lots of potential in the primary sector, government skill gap reports are prioritising secondary and tertiary sectors. Organic farming and other farm-related activities and off-farm activities of agriculture and allied sectors are waiting for takers. Reduction in human power in agriculture and large scale migration to urban areas from rural areas has impacted agriculture. Due to migration by male population, agriculture has become feminised. Contribution of agriculture to economic growth (GDP) has also slowed down. The rate of growth of major sectors during 2008-2009 at factor cost (2004-2005 prices) for agriculture is 1.6% (Government of India 2010). The increasing rate of skilled human power and mechanization of agriculture may increase agriculture productivity. So, since many of the NGOs located in semi-urban and rural areas, there is more chance for them to concentrate on skill development in agriculture sector.

8   Concluding Observation

The paper has analysed the role of NGOs in skill development by observing the activities of two NGOs from governance perspectives. Considering this, we have understood that they target unskilled educated youth from socio-economically weaker sections, to give skill training. NGOs establish the required infrastructure by mobilising financial resources from various sources. Neo-liberal economic climate has contributed to the development of NGOs. Apart from free market economy, neo-liberal economy too has given importance to governance thereby promoting economically weaker sections as economic actors (entrepreneurs) by providing skills. Socio-economically weaker sections are concentrated in the unorganised sectors and primary sectors. NGOs, private sectors and government can

collaborate among them to make the weaker sections skilled so that they have the chance to work in the organised sectors. The previous government of India programmes like Integrated Rural Development Programme (IRDP) and SGSY also targeted the economically weaker sections to improve their livelihoods through various kinds of economic activities. All the previous poverty eradication programmes of government of India brought certain population above poverty level, but some gaps were found in implementing those programmes (Fernandez 2008). NGOs need to conduct a study among the target population and other stakeholders to assess the existing economic potential of the target population, their skill level, education level, available local resources like technical institutions, skilled human requirement of the district and potential collaborators. NGOs also need to conduct impact assessment study in regular interval among skilled youth to know if the training has created significant improvement in their lives.

Notes

1. International-level NGOs: It often headquartered in developed countries;
2. National-level NGOs, whose orientations are towards issues and interests in the countries in which they are based; and
3. Local-level or Community-based NGOs that generally exist to address concerns in relatively localised geographical areas. NGOs operating at the community level often reflect memberships comprising individuals who have come together to address immediate community-based interests.
4. The Constructive programme may otherwise and more fittingly be called construction of Poorna Swaraj or complete independence by truthful and non-violent means." - Constructive Programme its meaning and place – M. K. Gandhi, 1941
5. There are different sections in Income Tax Act of India. These sections are given continuous number and alphabets. The sections in the act starts from A. Section 35 CCA deals with expenditure by way of payment to associations and institutions for carrying out rural development programmes.

References

Abramson, D. M. (1999): A Critical Look at NGOs and Civil Society as Means to an End in Uzbekistan. In: Human Organisation. Vol. 58, No. 3, pp. 240-250.

Asian Development Bank (1989): Cooperation with NGOs in Agriculture and Rural Development. Manila: Asian Development Bank. Vol. 1, pp. 84.

AusAID (2001): Reducing Poverty: the Central Integrating Factors of Australia's Aid Program. Canberra: AusAID.

Biswas, N. (2006): On Funding and the NGO Sector. In: Economic and Political Weekly. Vol. 41, No. 42, p. 4409.

Carroll, T. F. (1992): Intermediary NGOs: the Supporting Link in Grassroots Development. West Hartford: Kumarian Press.

Carothers, T. (1999): Aiding Democracy Abroad. Washington DC: Carnegie Endowment for International Peace.

Chenoy, Dilip. (2013): Skill Development in India: A Transformation in the Making. In: IDFC Foundation (Ed.): India Infrastructure Report 2012. New Delhi: Routledge. Pp. 199-201.

Clarke, G. (1998): Non-Governmental Organisations (NGOs) and Politics in the Developing World. In: Political Studies. Vol. 46, No. 1, pp. 36-52.

Edwards, M. and Sen, G. (2000): NGOs, Social Change and the Transformation of Human Relationships: a 21st Century Civic Agenda. In: Third world quarterly. Vol. 21, No. 4, pp. 605-616.

Elliot, C. (1987): Some Aspects of Relations between the North and South in the NGO Sector. In: World Development. Vol. 15, pp. 57-68.

ETASHA (2015). General Information. URL: www.etashasociety.org.

Fernandez, A. P. (2008): Can Credit Alone Promote Livelihoods of the Poor without Power and All-round Development? Myrada's Journey in its Strategy to Promote Livelihoods of the Poor. In: Rural Management Systems Series Paper 50. Myrada: Bangalore.

Fisher, F. (1997): Doing Good? The Politics and Antipolitics of NGO Practices. In: Annual Review of Anthropology. Vol. 26, pp. 439-464.

Fowler, A. (1996): Strengthening Civil Society in Transition Economies-From Concept to Strategy: Mapping an Exit in a Maze of Mirrors. In: Clayton, A. (Ed.): NGOs, Civil Society and State-building Democracy in Transition Societies (INTRAC NGO Management and Policy). Oxford: INTRAC.

Fowler, A. (2000): NGDOs as a Moment in History: Beyond Aid to Social Entrepreneurship or Civic Innovation. In: Third World Quarterly. Vol. 21, No. 4, pp. 637-654.

Gaventa, J. (1999): Crossing the Great Divide Building Links and Learning between NGOs and CBOs in the North and South. In: Lewis, D. (Ed.): International Perspectives on Voluntary Action: Reshaping the Third Sector. London: Earthscan.

Gerard, D. (1993): Charities in Britain: Conservatism of Change? London: Bedford Square Press.

Ghosh, B. (2009): NGOs, Civil Society and Social Reconstruction in Contemporary India. In: Journal of Developing Societies. Vol. 25, No. 2, pp. 229-252.

Government of India (2002a): Tenth Five Year Plan: Dimensions and Strategies. New Delhi: Planning Commission. Vol. 1.

Government of India (2002b): National Human Development Report 2001. New Delhi: Planning Commission.

Government of India (2004): Swarnajayanthi Gram Swarozgar Yojana Guidelines. New Delhi: Ministry of Rural Development. URL: http://rural.nic.in/sites/downloads/programmes-schemes/prog-schemes-sgsy.pdf.

Government of India (2010): Economic Survey 2009-10. Ministry of Finance.

Government of India (2013): Educational Statistics at a Glance. New Delhi: Bureau of Ministry of Human Resources. URL: http://mhrd.gov.in/sites/upload_files/mhrd/files/statistics/EAG 2013.pdf.

International Labour Organisation (2002): Women and Men in the Informal Economy: A Statistical Picture. Geneva: ILO.

Jakimow, T. (2009): Non-Governmental Organisations, Self-help Groups and Neo-liberal Discourse. In: Journal of South Asian Studies. Vol. 32, No. 3, pp. 469-484.

Jenkins. R. (2005): Mistaking "Governance" for "Politics". In: Kaviraj and Khilnani, S. (Eds.): Civil Society: History and Possibilities. London: Cambridge University Press. Pp 250-268.

Jorgensen, L. (1996): What are NGOs Doing in Civil Society. In: Clayton, A. (Ed.): NGOs, Civil Society and the State-building Democracy in Transition Societies (INTRAC NGO Management and Policy). Oxford: INTRAC.

Kilby, P. (2004): Is Empowerment Possible under a New Public Management Environment? Some Lessons from India. In: International Public Management Journal. Vol. 7, No. 2, pp. 207-225.

Korten, D. C. (1990): Getting to the 21st Century: Voluntary Action and Global Agenda. USA: Kumarian Press.

Krut, R. (1997): Globalization and Civil Society: NGO Influence in International Decision-making. Geneva: UNRISD. Discussion Paper, No. 83.

Kudva, N. (2005): Strong States, Strong NGOs. In: Ray, R. and Katzenstein, M. D. (Eds.): Social Movement in India. Lanham: Rowman and Little field. Pp. 233-266.

Lehmann, D. (1990): Democracy and Development in Latin America: Economics, Politics and Religion in the Postwar Period. London: Polity.

Lissner, J. (1997): The Politics of Altruism: A Study of the Political Behaviours of Voluntary Development Agencies. In: Journal of Latin American Studies. Vol. 23, No. 3, pp. 665-667.

Lewis, D. and Kanji, N. (2009): Non-Governmental Organisations and Development. Oxon: Routledge.

Mulgan, R. (2003): Holding Power to Account: Accountability in Modern Democracies. New York: Palgrave MacMillan.

Najam, A. (1996): NGO Accountability: A Conceptual Framework. In: Development Policy Review. Vol. 14, No. 4, pp. 339-354.

Narayan, D., Patel, R., Schafft, K., Rademacher, A. and Koch-Schulte, S. (1999): Can Anyone Hear Us? Voices from 47 Countries. In: Voices of the Poor. Vol. 1. Washington: World Bank.

National Skill Development Corporation (NSDC) (2012): Proposals Submission Guidelines Applicable for NGOs Involved in Formal/Informal Sector. New Delhi: National Skill Development Corporation.

Nelson, P. J. (1995): The World Bank NGOs: The Limits of a Political Development. London: MacMillan.

OECD (1998): Voluntary Aid for Development: Role of Voluntary Organisations. Paris: Organisation for Economic Cooperation and Development.

Paton, R. (1993): The Social Economy: Value-based Organisations in the Wider Society. In: Batsleer, J., Cornforth, C. and Paton, R. (Eds.): Issues in Voluntary and Nonprofit Management. UK: Addison-Wesley. P. 6.

Peace Trust (2014): Skill for Freedom Enhancing the Quality of Life of Rural Youth in Tamil Nadu. Dindigul: Peace Trust.

Pilz, M., Uma, G. and Venkatram, R. (2015): Skill Development in the Informal Sector in India: the Case Study of Street Food Vendors. International Review of Education. DOI.10.1007/s11159-015-9485-x.

Ravichandran, N. (2007): Sustainability of NGOs and Globalisation. New Delhi: Rawat Publication.

Rajasekhar, D. (2000): Non-Governmental Organisations (NGOs) in India: Opportunities and Challenges. In: Journal of Rural Development. Vol. 19, No. 2, pp. 249-275.

Sahoo, S. (2013): Doing Development or Creating Dependency? NGOs and Civil Society in India. In: South Asia: Journal of South Asian Studies. Vol. 36, No. 2, pp. 258-272.

Salamon, L. M. and Anheier, H. (1999): The Third World's Third Sector Comparative Advantage. In: Lewis, D. (Ed): International Perspectives on Voluntary Action: Reshaping the Third Sector. London: Earthscan. Part 1.

Salamon, L. M., Hems, L. C. and Chinnock, K. (2000): The Non-profit Sector: for What and for Whom? Baltimore: The Johns Hopkins Center for Civil Society Studies. Working Paper of the John Hopkins Comparative Non-profit Sector Project, No. 37.

Scott, J. C. (1998): Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed. City of New Haven: Yale University Press.

Sethi, H. (1993): Some Notes on Micro Struggles: NGOs and the State, Asian Exchange. Arena Bulletin 9,1.

Shylendra H. S. and Bhirdikar, K. (2005): Good Governance and Poverty Alleviation Programmes: A Critical Analysis of the Swarnajayanti Gram Swarozgar Yojana. In: International Journal of Rural Management. Vol. 1, No. 2, pp. 203-221.

Thomas, S. M. (2004): Building Communities of Character: Foreign Aid Policy and Faith Based Organisations. In: SAIS Review. Vol, 24, No. 2, pp. 133-148.

United Nations Development Programme (1993): Human Development Report 1993. New York: Oxford University Press.

Vakil, A. C. (1997): Confronting the Classification Problems: Towards Taxonomy of NGOs. In: World Development. Vol. 25, No. 12, pp. 2057-2070.

Vanclay, F. (2003): International Principles for Social Impact Assessment, Impact assessment and Project Appraisal. Vol. 21, No. 1, pp. 5-12.

White, S. C. (1999): NGOs Civil Society and the State in Bangladesh. In: Development and Change. Vol. 30, No. 2, pp. 307-326.

World Bank (1996): Participation Source Book. Washington DC: World Bank.

World Bank (2008): Skill Development in India: The vocational Education and Training System. Report, No. 22. Washington: World Bank.

Further Education and Training, Retraining: Skilful India – A Dream or Reality

Venkatraman Badrinath

> *"The illiterate of 21st century will not be those who can't read and write*
> *But who cannot learn, unlearn and relearn." (Dskmag 2009)*

1   Training – An Overview

Training is a planned and systematic attempt to improve aptitude, attitude, skills and knowledge of a person to perform a task effectively and efficiently. All types of organisations, of late, have understood that their success lies not in physical assets but in the quality of human resource (HR) they possess. It is the employees who make or break an organisation. Identifying, attracting, developing, compensating and above all retaining the talented workforce, called 'Talent management', is the biggest challenge faced today by all the HR managers of the world. Talented employees provide competitive advantage to an institution. So, every employer is keen to hire the best talent available in the job market. Candidates with right attitude, good aptitude, sound in domain and general knowledge with hard and soft skills are preferred by the employers, which is a rare commodity in the employment market and hence the employer assumes the responsibility of equipping the workforce through training.

The first part of this article throws light on the existing skill gap in India to help the reader to understand the background of job seekers in India, efforts made to bridge the skill gap by imparting vocational education and training to the students at schools and colleges and through Corporate Social Responsibility (CSR) efforts so as to build the basic skills apart from highlighting the recent efforts made by Indian government to skill the Indians through its new national skill development policy. The second part deals with method of training need assessment (TNA) and current training practices followed in leading IT companies, few manufacturing and service sector units in India. The third part deals with importance of E-Learning, methods followed in evaluation of training effectiveness and suggestions and recommendations for improving the skill and competency of Indian workforce to meet future challenges.

For this purpose the training practices of five globally known IT companies viz. TCS, Wipro, Infosys, IBM and Accenture have been studied, and to know the training practices in Indian manufacturing sector four leading business groups/companies viz. Aditya Birla group, ESSAR group L&T and TITAN have been discussed. Training practices of two major public sector undertakings, which are part of Indian 'Navratna' companies (the nine most successful public sector undertakings of India), viz. Neyveli Lignite Corporation (NLC), Hindustan Petroleum Corporation Limited (HPCL) have also been analysed. In the service sector, the training practices of banking and insurance sector has been considered. The required information and data were collected both from various primary and secondary sources.

2   Skill Gap – The Great Indian Talent Conundrum

India with 1.2 billion population as of today is expected to reach 1.3 billion by the year 2020, will become the most populated country in the world over taking China. At the same time, a good news for India is that, it is "one of the youngest country in the world" which is blessed with "demographic dividend". The term "demographic dividend" refers to

> "*At an early stage of [demographic] transition, fertility rates fall, leading to fewer young mouths to feed. During this period, the labour force temporarily grows more rapidly than the population dependent on it, freeing up resources for investment in economic development and family welfare."(Mason and Lee 2006)*

Despite having this so called demographic dividend, labour and skill shortage or skill gap continues to haunt the Indian industries in a big way. Here the term 'skill shortage' or 'skill gap' refers to a difference between demand and supply of skilled labour in the Indian employment market. In simple terms, it is nothing but the difference between the skills required for the job and those held by the futures employee. Census 2011 report of Government of India says 113 million unemployed are seeking jobs. According to Nimesh Chandra (2013) 39 million persons have registered with the 969 government employment exchanges spread across the country as of the year 2010. These employment exchanges, in an average in a year, can provide job opportunities for 7.2% of its registered candidates only. The Indian unemployment rate stood at 13.3% during the year 2013 as per the survey of Ministry of Labour, Government of India. The same survey says one third of Indian graduates are unemployed.

As per 2007-08 Indian economic survey, 64.8% of India's population in future will be in the age group of 15-59 years in the year 2026 which was 62.9%

in the year 2006. National Skill Development Corporation (NSDC) Policy report (2009), citing a study conducted by Confederation of Indian Industries (CII) and Boston Consulting Group (BCG) (2014) says "If the current trend continues 109 million persons will reach the working age during the period of 2007-12 in India 2014." The overall addition to work force is expected to reach 89 million of which around 13 million are expected to be under graduates/post graduates and about 57 million may belong to the group of school drop outs or illiterates. According to International Labour Organisation (ILO) report 2011, only 10% of the workforce in India has received some form of skill training. In that, 2% of total workforce has undergone formal skills training and other 8% have received informal training (see chapter 12). Further it says, 80% of candidates who join the Indian work force don't have opportunity for skill training. It is also important to note that 90% of Indian work force is employed in informal/unorganised sector. ILO as has defined the 'unorganised workforce' as

> *"(...) those workers who are not been able to come together to achieve their common objectives due to certain constraints like the casual nature of their employment, ignorance, illiteracy etc." (Sundaram 2000)*

The unorganised sector is not backed by any proper skill development and training method of learning and improving skills. The National Policy on Skill Development (2009) once again citing the BCG study says that

> *"(...) by 2020 the world will have shortage of 47 million working people but India will have surplus of 56 million people." (Mukerji and Tripathi 2010)*

So to encash the benefit of demographic dividend and to export skilled labour to other parts of the world, India needs to focus both on skilling its people entering the job market and its current work force to improve its existing productivity, standard of living of people and there by contribute for overall economic development.

3   Bridging of Skill Gap

Realising all the above said challenges the country has started making efforts towards bridging the skill gap in India through various means and agencies. The efforts made in the country include providing more and more skill based vocational education, CSR efforts by corporate houses and introduction of National

skill policy by Government of India apart from efforts by various Non-Governmental Organisations (NGOs) and few international agencies (see chapter 10).

3.1   *Vocational and Skill Education through Schools and Colleges*

In India around 12 million people join the workforce every year comprising a 'very small number of highly skilled persons' and the remaining belongs to the group of skilled, semi-skilled and unskilled workforce. As per All India Council Technical Education (AICTE 2012) 2012-13 handbook there are 3,716 polytechnic colleges, 10,344 Industrial Training Institutes, 5,672 engineering institutes in India offering technical and vocational education apart from government agencies/departments, NGOs and corporate initiatives (see chapter 4, 5 and 10). Pillai (2014), in his report, illustrated that existing vocational education institutions have the capacity to produce only 4.3 million people only as against 12 million joining every year as the work force in India. Vocational education is currently offered at higher secondary level in India that too in a small scale by offering few subjects, which are not scientifically designed in its actual sense. In future, skilling and technical education capacity needs to be enhanced to 15 million. A study conducted by NASCOM and McKinsey study in 2005 says only 25% of Indian engineering graduates are employable in IT industry without training. The vocational education in India has not attracted the Indian students, because the students and parents think that education and training through ITIs, polytechnic and other craft institutes are inferior and prepare for lower end jobs with meagre salary, when compared to university and college education which gives better social status. It is evident that according to a World Bank report 2006, less than 3% of the students attending grades 11-12 in India have enrolled in vocational education, when compared to other countries like Russia (60%), China (55%), Chile (40%), Indonesia (33%), Korea (31%), Mexico (12%) and Malaysia (11%) (Bharadwaj et al. 2011). A concept note on Need for Vocationalisation of Education in India by Symbiosis (2010) states that there are about 6,800 schools which enrolled 0.4 million students in vocational education scheme in the higher secondary education of India, using only 40% of the available student capacity in these schools. Also there is a shortage of qualified and experienced faculty to teach students on vocational skills. The inputs given at schools, ITI, polytechnic and even in engineering colleges are not in line with industrial needs. The practical classes, project work and internships included as part of the study in schools and colleges do not give enough exposure and are not offering the desired inputs, for obvious reasons. The industry-institute interaction is reasonably good in India's premier engineering and management in-

stitutes like IITs and IIMs and in few private institutes only and not with the majority. Because of this, the academia fails to understand the industry expectations to mould its students properly (see chapter 3,4,5,6 and 10).

3.2   Role of Corporate Social Responsibility in Skill Development

The CSR aims at fulfilling the 'societal obligations' of corporate houses apart from meeting the expectations and serving its major stake holders like shareholders/promoters and its employees. Many Indian corporate and MNCs are voluntarily offering several skill development programmes under their CSR programme for a long time. A recent notification in Indian companies Act 2013 made it mandatory to spend 2% of net profit after tax of the Indian companies to benefit the society. The provisions of law are applicable to companies with at least Rs. 50 million net profits or Rs. 10 billion turnover or Rs. 5 billion net worth. These companies should spend 2% of their three-year average annual net profit on CSR activities in each financial year, starting from financial year 2015. A study by Ernst & Young predicts that a sum of Rs. 12.5 to 15 billion is likely to be spent by more than 2,500 companies in India for the CSR programmes every year in future. A survey of 50 companies by the same agency has found that the companies spend the major portion of their CSR budget for 'education and lively hood development' which covers skill development programmes also.

3.3   Introduction of National Skill Policy

In the year 2013 realising 'the great Indian talent conundrum' the government of India has framed national skill policy in 2009, which fixed a target of imparting skills training 500 million by 2022. The Prime Minister's National Council on Skill Development is a highest administrative body to frame policies, directions and will do progress review. In the year 2013 the NSDC, a Private Public Partnership (PPP) model (50% funding from government and 50% from corporate houses) with an initial funding support of Rs. 10 billion from the Government of India, started preparing skill gap analysis report for 21 sectors in 14 states of India. N also conducts training to impart various skills along with its 62 alliance partners across India (see chapter 7).

The challenge in skilling the Indian workforce is its diversity and work location. The diversity in terms of literate and illiterate, male and female, rural and urban, fresh and experienced, skilled vs. unskilled, organised vs. unorganised and

agriculture and non-agriculture etc. The following table classifies the distribution of Indian workforce in different sectors.

Sector	Number of workers (in millions) during 2009 – 2010
Agriculture	244.85
Mining	2.95
Manufacturing	50.74
Construction	44.04
Electricity, gas and water supply	1.25
Services	116.34

Table 1: Composition of employment - Sector wise. Source: Planning Commission (2009-2010)

From table 1 it is observed that 50% of overall Indian workforce is engaged in agricultural sector and remaining 50% distributed in non-agricultural sector namely construction, mining, manufacturing energy and services sector. The services sector provides second highest employment opportunity next to agriculture. The existing skill gap is likely to extend in future. A forecast data (ICRA Management Consulting 2010) from National Skill Development Corporation report (2009) about the skill gap short fall in 2022 is given in table 2.

S.No	Sector/Industry	Incremental requirement for Human Resources by 2022 (in millions)
1	Building and Construction Industry	33
2	Real Estate Services	14
3	Leather and Leather Goods	4.6
4	Gem and Jewellery	4.6
5	Organised Retail	17.3
6	Textile and Clothing	26.3
7	Electronic and IT hardware	3.3
8	Auto and Auto Components	35
9	IT and ITES	5.3
10	Banking, Finance services and Insurance	4.2
11	Furniture and Furnishing	3.4
12	Infrastructure Structure	103
13	Tourism and Hospitality Services	3.6
14	Construction Material and Building Hardware	1.4
15	Chemicals and Pharmaceuticals	1.9
16	Food Processing	9.3
17	Health Care	12.7
18	Transportation and Logistics	17.7
19	Media and Entertainment	3
20	Education and Skill Development Services	5.8
21	Select Informal Employment sectors (domestic help, beautician, facility management, security guard)	37.6
	Total Incremental Requirement for skilled personnel	347

Table 2: Skill gap expected in India in 2022. Source: ICRA Management Consulting (2010)

From the above table, it is observed that there is going to be a huge skill gap in the infrastructure, auto and auto components, textile and clothing, informal, organised retail, transportation and logistics fields.

In addition to above, increased manufacturing competitiveness among the nations will lead to requirement of more and more skilled labourers. The 2013 global competitiveness Index manufacturing report of Deloitte has listed the top ten nations' manufacturing competitiveness which is given below in table 3.

Rank	Country	Index Score (yr. 2013) 10=High 1=Low	Rank	Country	Index Score (yr. 2018) 10=High 1=Low
1	China	10.00	1	China	10.00
2	Germany	7.98	2	India	8.49
3	U.S.A.	7.84	3	Brazil	7.89
4	India	7.65	4	Germany	7.82
5	South Korea	7.59	5	U.S.A.	7.69
6	Taiwan	7.57	6	South Korea	7.63
7	Canada	7.24	7	Taiwan	7.18
8	Brazil	7.13	8	Canada	6.99
9	Singapore	6.64	9	Singapore	6.64
10	Japan	6.60	10	Vietnam	6.50

Table 3: Current and future global manufacturing competitiveness. Source: Deloitte (2013)

From the above table, it is clear that the developed economies are ranked in the top 10 list during the year 2013. The Deloitte and U.S Council on Competitiveness joint Global Manufacturing Competitiveness Index (GMCI) report of 2013 says in the next 5 year period developing economy nations like China, India, Brazil are likely to occupy the first three positions. Brazil's giant leap from 8th position to 3rd position is notable. India's manufacturing competitiveness is increasing and the study says that in the next five years India is going to climb up the ladder and will occupy 2nd position from the present 4th position in the top 10 list. Though the developed economic nations like Germany and USA are found in the future index, it is said that few of them are expected to slip from their present position. The three major disadvantageous factors cited by European business leaders participated in the study are labour policies, immigration policies and policies resulting in government intervention and ownership in companies.

From the above arguments it is very clear that there is a definite need for producing skilled manpower to meet the future manpower requirements of India. Since the percentage of youths joining the workforce with necessary skills, knowledge and aptitude is very less, the Indian employers are forced to pay their full attention on training and development of the Indian workforce in addition to current and future efforts by Government and NGOs who are also augmenting the best possible at their end.

4   Training Need Assessment

Success of any training programme to a very great extent depends on assessing the training needs of the participants and training design and delivery. It was found that, many companies surveyed for this study are following common and conventional methods like task analysis, individual analysis, requirement analysis and performance reporting methods etc. Tools used by them for assessing training needs include work sampling, checklist, critical incident, suggestion from supervisors and managers, personal interviews and self-reporting questionnaires. Training needs were also analysed and understood by observing lower productivity, poor quality of output, industrial accidents, poor interpersonal relations, lack of individual initiative and increase in absenteeism, market trends and reports on skill and manpower needs and labour turnover.

5   Training Programme in Indian Companies

Training and development in Indian companies is provided at all levels i.e. workers, supervisors, junior and senior managers, and top level executives. Majority of the institutions of the study follow popular job training methods like on off the job training, job instruction training, project assignment, under study method, apprenticeship training, and committee assignment (see chapter 8). They also follow off the job methods like case study, role play, simulation games, syndicates, seminars, panel discussion, brain storming, computer and web based learning, satellite broadcasting etc. The methods of training and development programmes followed by Indian companies for different levels of employees and executives have been presented in table 4 (see chapter 9).

Level	Method of Training
Workers	Operational Training
Supervisors	Functional Training
Junior and Senior Managers	Functional and Behavioural Training
Top level executives	Leadership Skills, Strategic Management, OBL

Table 4: Training offered in Indian Companies - Level wise. Source: Own illustration

In the last 10 to 20 years, Indian industrial and business organisations have made a significant progress in terms of their training efforts. This is because of the impact of globalisation on Indian economy and entry of multinationals and competition arising thereof etc. According to PallaviJha, Managing Director of Dale Carnegie Training,

"In a country where the knowledge economy is booming, training budgets are estimated to be low and restricted to certain 'progressive' companies. Traditionally, Indian companies spend anywhere between 0.5 and 2% of their turnover on training their employees. IT and ITES companies, which are essentially involved in people-oriented businesses, spend about 3-5% of their revenues on upgrading employee skills."(Prayag2006)

5.1   Training and Development Practices in Indian IT Companies

Information Technology (IT) companies are the greatest hope for today's Indian Engineering Graduates and today they are the biggest recruiters in private sector in India. For example, the top 6 IT companies called SWITCH – Satyam (now Tech Mahindra), Wipro, Infosys, TCS, Cognizant and HCL alone recruit around 0.2 million fresh engineering graduates every year from all disciplines of engineering like mechanical, civil, biotechnology, chemical, automobile, etc., across India through their 'on campus' and 'off campus' hiring process. The annual salary in IT services company ranges from Rs. 0.3 million to Rs. 0.6 million. In the case of IT product companies the MNCs like Microsoft, Yahoo, Google etc., are paying Rs. 0.6 million to Rs. 2.5 million per annum for fresh engineering graduates in India. Hence training practices of some of the leading IT companies are discussed in detail in the following paragraphs.

5.1.1   Training and Development in TATA Consultancy Services (TCS)

TCS an Indian multinational company which is one of the top 10 IT companies of the world having 150 offices spread across 46 countries employing around 0.3 million employees in IT and Information Technology Enabled Services (ITES). It has training centres located at Chennai, Ahmadabad, Hyderabad, Guwahati, and Kolkata and in overseas countries like China, United States and South Africa. For new employees, in the Initial Learning Programme (ILP) the modules like basic technology training, project delivery, management and business life cycle and soft skills are covered. Trainees are expected to maintain a log of their daily learning which is periodically reviewed by the trainers. All TCS employees undergo a mandatory 14 days retraining every year under their continuous learning programme.

TCS offers various online courses and sends emails and SMS to its employees about the launch of the new courses and their duration. These are closely tracked by the training department which ensures successful completion by sending automated reminders for those who fail to complete the training within the training. TCS does 'talent spotting' with the help of their line managers to offer

leadership training under succession planning system. High performers from different geographies of TCS are identified and are given technical and managerial training to occupy higher positions in future. The CEO of TCS is personally involved in selecting and forming leadership teams of different geography. TCS follows job rotation by sending them to different projects, verticals and geographies to make them versatile.

The average attrition rate in Indian IT industry is between 10 to 20% during December 2013 according to Cxotoday.com. The software professionals in the IT industry after acquiring basic knowledge and skills in an IT company do job hopping to get better salary and position. Hence, of late, as a HR strategy, the software companies are started recruiting non-engineering graduates such as Bachelor of Science (B. Sc.) and Bachelor of Computer Application (BCA) and other related under graduate science courses in the place of engineering graduates. These non-engineers are paid 20 to 30% lesser salary than the engineering graduates and they do accept this salary and stay happily for a longer duration. To stop attrition of these non-engineering employees IT companies sponsor them for higher studies which are beneficial to both individual and organisation with a service agreement.

- *IGNITE*: It is an intense learning programme for non-engineering science graduates. TCS is the largest recruiter of fresh science graduates. Selected candidates are given six months training and are exposed to various real world projects. These candidates are encouraged to pursue Master of Computer Application (MCA) programme through distance learning with their partner Universities like SASTRA University, Thanjavur, India.
- *TCS ambassador Corp*: It is a leadership development programme for experienced employees to take up global sales role. TCS also offers many other innovative training programmes like 'Knowmax' an enterprise wise knowledge management system. They also offer E-Master of Business Administration (MBA) programme through AMRITA University, Coimbatore, Tamil Nadu and Master of Science (M. Sc.) in Management and IT services through University of Buffalo, New York, USA. Similarly IIT Madras, India is offering specialised programmes like M. Tech., in Mechanical Engineering Design and Applied Mechanics in Computational Engineering.

5.1.2   Training and Development in IBM

IBM globally ranked number 1 software company was founded in the year 1911 and its Indian operations started in 1951.The company has 55,000 employees in India and having its presence in 170 countries across the globe. Their major verticals include banking, insurance, finance, media, entertainment, energy, pharmaceuticals, retail, travel, transport, aero, defence, automobiles, electronics, government, education and health care. Its Indian training division has around 2,000 part time internal trainers who have rich practical experience in project management, technical management, soft skills and software developments. Its Indian training centres can train 1,500 people at a time through its five training centres in Chennai, Bangalore, Kolkata, Pune and Mumbai. It offers training programme for a minimum period of three days to a maximum of two months depending on the training module. The topics of training includes ORACLE, SAP, soft skills, leadership development, diversity management, global culture, executive leadership programme, corporate services, etc. The target group ranges from software developers, programmers and executive leadership. The company also sponsors its executives and employees to pursue higher education with reputed E-Schools and B-Schools in India and abroad. Currently the retraining programme focuses on 'fastest emerging technologies' namely Social media, Mobile technology, Analytics (big data), Cloud computing (SMAC) for a week, to all its practitioners.

5.1.3   Training and Development in WIPRO

Wipro limited (Western India Products limited) was founded in the year 1945 and head quartered in Bangalore, India. It is ranked as the seventh largest IT services company at the global level with a market capitalization of approximately $20.8 billion. It has around 0.146 million employees with its presence in 67 countries. It focuses on both IT and non IT businesses. The non IT businesses cover consumer care, health care, lighting and infrastructure engineering. At the beginning, the new entrants are given a three day orientation programme. The first day is dedicated to explaining the value system in Wipro, and then they are given group exercises. After completing orientation programme, eight to ten weeks of training is offered in topics like computer operating system, networking, website programming and digital exercises. Later they are exposed to quality parameters where they spend three days to understand business, finance, sales, marketing and HR concepts and practices. In addition to behavioural training, they are introduced to 24 competencies to be measured in their future career. The trainees are tested periodically for their understanding of inputs with a minimum score of 70% to retain

their jobs in the company. Later they are given project readiness programme where they will spend two to three months of training based on their area of interest like software programming or project engineering. Trainees are assigned technical topics to prepare and present before their senior officials. Each vertical gives domain specific training to the new employees. Candidates joining Wipro Business Process Out sourcing (BPO) division get special training on western culture, countries history, spoken English with neutral accent, business etiquettes and manners etc. After six months of rigorous training, Mr. Azim Premji, the Chairman of Wipro Technologies addresses the employees, in batches, about the organisation's vision, mission and value system.

Wipro has introduced Wipro Academy of Software (WASE), the first of its kind in India, for the B. Sc. graduates. Under this programme, the employees with B. Sc. qualification are sponsored to pursue M. Sc. programme through distance learning mode with BITS Pilani, Rajasthan, India, which is one of the top most private engineering institutes in India.

Wipro InfoTech Master of Science (WIMS) programme is offered to B. Sc. and B.C.A. graduates on IT infrastructure management services. It also offers another four years M. Sc. programme on software technology through its partner Universities like VIT Vellore. During the four year programme, the candidates are given theoretical and hands on practical experience in live projects with a decent stipend, as a part of 'earn while you learn' programme. For the WASE candidates, ten weeks training is given covering the following four modules in the Wipro ILP.

Fundamental Readiness Programme (FRP) covering four modules over a period of ten days. Corporate Readiness Programme (CRP) spread over six days covering an introduction about the organisation, behavioural skills, spirit of Wipro and personal and premises security. The Technical Readiness Programme (TRP) imparts ten different technologies with a set of designed assignments and case study spread over 25 days. The Real Life Lab (RLL) gives opportunity to assimilate the understanding of TRP by analysing real life case study for a period of four weeks before they are deputed to project works.

5.1.4   Training and Development in Accenture

Accenture is a multinational, management consulting, technology services and outsourcing company founded in the year 1989 and is headquartered at Dublin, Ireland. It is a Fortune Global 500 company and the world's largest company in terms of revenue with a total workforce of 0.293 million (2014). Its revenue in the year 2013 was $28.6 billion. It operates in 56 countries. Accenture offers technical, communication skill, team skills, leadership skill for the fresher apart from 12

weeks on the job training under the guidance of experienced employees. 'Leaders Teaching Leaders' is a unique programme in which Accenture leaders share their past experience with present employees for the betterment of working styles. Senior employees act as mentors for new and young employees. All Accenture employees are expected to undergo a minimum of 80 hours of training in a year. It offers 0.1 million online as well as class room courses. Peer learning also happens through a programme called 'communities of practice' by sharing their knowledge and best practices. Employees with more than five years of experience are given training and certification programme at MIT, USA. The company also sponsors its managerial executives to pursue MBA and M.Sc. through reputed institutions of India.

5.1.5   Training and Development in Infosys

Infosys is an Indian multinational corporation that provides business consulting, IT, software and outsourcing services. Infosys is ranked as third largest India based IT Services Company by 2014 revenues. It was founded in the year 1981 and has 0.16 million employees across the globe. It is ranked as the 15th largest IT Company by HFS research in its 2013 ranking in the world. The market capitalisation was 885 billion. Infosys has the global education centre at Mysore, India. It was established in 2002 with 1.4 million sq. ft. floor space, 500 instructors and 200 classrooms, and is the world 15 largest corporate university which had trained around 100,000 engineering graduates till 2012. It can train 12,000 employees in three batches of 4,000 employees of four months each. Infosys has been recognised as 'the gold company' which offers 850 distinct workshops, programmes and courses to develop managerial, process, industry, technical and leadership skills. 'Path Finder Next' is an internal internship programme offered to infoscions to select work opportunities across various domains, which gives vertical lateral exposure, hands on learning and job enrichment. Infosys encourages its employees to pursue higher education with their partner Universities. It also offers various part time and value added internal assignments. Through a mentoring programme called 'friendly ear' constructive feedbacks are given about individual performance. The Infosys Leadership Institute (ILI) which has 96 rooms and trains 400 infoscions every year on leadership aims at developing excellent future corporate leaders. The institute identifies potential candidates and supports their developments in taking on key leadership positions.

5.2 Training in Manufacturing Sector

India's manufacturing sector plays a significant role in the economic development of the country. They undertake as variety of employee development initiatives to train and retrain their employees. Training initiatives of a few leading business houses of India are given below, as a sample.

5.2.1 Training and Development in Aditya Birla Group

Aditya Birla Group belongs to the league of fortune 500 companies, having 0.12 million employees belonging to 42 different nationalities. The Aditya Birla Group (2015) has been ranked as top four companies in global ranking conducted by Aon Hewitt and Fortune Magazine and ranked as No. 1 in Asia Pacific in the year 2011. In its group revenue, 15% flows from overseas operation. The group was founded in the year 1857 and they concentrate in the field of metals, cements, staple fibre, branded apparel, chemical, fertilizers, telecom, IT, wind power and financial services. The group operates in 36 countries. The leading manufacturing giant in India offers training and retraining program to their employees in different ways. Some of them are given below.

Gyanodaya Virtual Campus (GVC) is the Group's Learning Management System (LMS) serving 30,000+ active e-learners at various levels across the globe. E-Learning, multi-tier programme and leadership training is offered to general managers.

- *Gyandhara* is the Group's knowledge *e-magazine* portal that reaches out to 50,000 readers.
- *Individual Learning Plans* are developed for every employee based on individual training needs.
- *Continuing Education Policy* facilitates learning through a wide range of sponsorships and other enabling mechanisms.
- On the job, cross culture, leadership development, cross functional projects, overseas assignments, personal development and Knowledge Integration Programme (KIP) are some of the innovative employee development programmes offered by the group.
- *Functional programmes* like sales, marketing and supply chain management are offered to marketing executives. Role specific programme is offered to marketing, finance, HR and branch unit heads to improve their

managerial competency in their field. Business focused programme is of-
fered to middle and top level executives which covers current business
practices, challenges and business competition.

5.2.2   Training and Development in ESSAR Group

ESSAR group was founded in the year 1969 and it has subsidiaries namely ESSAR
steel, ESSAR oil, ESSAR shipping, the mobile store and hyper mart. The company
employs more than 73,000 people operating in more than 25 countries and has
revenue of $39 billion. Some of the novel training and development initiatives of
ESSAR group companies are given below:

- *Coaching and Mentoring*: As a part of their performance management
  process, every employee is entitled to receive coaching and mentoring
  from the immediate supervisor.
- *ESSAR book of coaching and mentoring*, which helps share success sto-
  ries of the coaches and mentees.
- *Coaching and mentoring summits*, where ESSAR coaches and mentors
  come together to laud and learn from successes across businesses and
  locations
- *Performance coaching*, where all ESSAR managers undergo perfor-
  mance coaching workshops.
- *ESSAR certified coach*: ESSAR managers undergo a six to nine months
  programme. Select coaches are awarded the prestigious ESSAR Starfish
  Award.
- *DET programme:* A two year full time residential programme for Di-
  ploma engineer trainees which acts as a bridge course to impart technical
  capabilities to the fresher.
- *ESSAR Corporate University (ECU):* The ECU is a virtual learning or-
  ganisation. ECU offers 18 month MBA programme under a MoU with
  premier B-Schools of India, for selected executives who meet their eligi-
  bility criteria. It also provides training on team skills, networking, risk
  taking, bonding, developing trust etc.
- *ESSAR Learning Centre (ELC):* ELC at Hazira offers various training
  programmes to meet the training requirements of ESSAR's human capi-
  tal. It conducts 400 formal training programmes per year on various sub-
  jects like production management, principles of management, and Logis-
  tics and supply chain management.

- *'Learning for all'* is a LMS which has e-modules on Industrial and business management and technical topics.
- *Individual learning plans*: Eemployees are made responsible for their own learning. The learning and Organisation Development (OD) department offers various kinds of inputs and required tools to help employees, such as individual/personal learning plans and learning passports for all.
- *'Learning tree'* provides support for learning through a chain of its owns libraries.
- *Learning hour*: Thought provoking lectures, interesting presentations, or discussions by experts on topics ranging from leadership to current business affairs.
- *Tell me why with chai? (Tea)*: Presentations or lectures on scientific topics that employees may be very keen about but was never given the opportunity to learn.
- *Executive Development Review (EDR)* is a mid-year appraisal where the line manager works with the employee to understand personal aspirations, identify training requirements, and frame career planning. This helps to identify promising future leaders and prepare succession plan to fill the important positions in the organisation, in future.

ESSAR group has won award from Indian Society for Training and Development (ISTD) in 2009 for innovative training practices.

5.2.3 Training and Development in Titan

Titan Company Ltd is a designer and manufacturer of multi-product lines such as watches, jewels, precision engineering components and other accessories like sunglasses, wallets, bags and belts. It is a joint venture between Tata group and Tamil Nadu Industrial Development Corporation. The Titan is the largest wrist watch manufacturer and it exports watches to more than 32 countries. Its revenue is $ 1.7 billion in the year 2013.

- Titan has 7,000 employees in India; its business is operated in 42 countries and has training centres in Hosur, Roorkee, Panthnagar and Uttaranchal of India.
- It provides attitude and technical training to its workers for a period of three to seven days through its training centre.
- For supervisors, it offers 12 days training on communication, interpersonal, behavioural, supervision and technical skills.

- Executive Development Programme (EDP) is offered to middle level executives for seven days.
- The other major areas of training include six sigma, ISO 9,000, health and safety measures, energy management and environment.
- They also use on line and mobile technology for various training programmes.

5.2.4   Training and Development in L&T Constructions

Larsen and Toubro also known as L&T, is an Indian multinational conglomerate founded by two Danish engineers in the year 1938 with its headquarters in Mumbai. The company's business interest includes engineering, construction, manufacturing, IT and financial services, heavy equipment, electrical, power, ship building etc. Its employee strength is 84,000 (2014). The fresh engineering graduates are given one year training covering the topics like soft skills, technical skills, basic business etiquettes and manners in addition to training in respective domains like Civil, Mechanical, Electrical and Electronics Engineering, Electronics and Communication Engineering. A brief orientation about organisation culture, vision and mission is given at the beginning of the training. Finally, at the end of training they are given mock projects to test their planning skills. Under 'Daksha' programme, the trainees are given two weeks intensive training on construction skills which covers quality, safety, cost and other aspects of construction. For all the existing employees four days training per annum is made compulsory. They adopt in-house and out bound training methods. For employees further education they have signed MoU with prestigious B-Schools of India Namely IIM Ahmadabad, XLRI, SP Jain management institute Mumbai. For M. Tech. Studies, they have a tie up with leading engineering institutions like IIT Mumbai, IIT Delhi, NIT Trichy and NIT Suratkal. The company also sponsors two-year tuition fees and hostel fees for M. Tech students and pays a pocket allowance of Rs. 8,000 every month.

Training offered at different levels in L&T constructions:

- *Supervisory Development Programme*: To the site based project engineers one week and a ten day Management Development Programme are planned to offer an exposure to operational management and behavioural skills.
- *Executive Development* is happening through intensive two-week long programmes providing exposure to overall understanding of the business,

Strategic Planning, Customer Relationship Management, increasing Shareholder Value, Financial Management.

- For middle level managers there is an exclusive nine day programme, crafted carefully in association with Administrative Staff College of India, Hyderabad.
- For top level executives, there is an agreement with Management Development Institute, Gurgaon to provide development programmes at Company's Management Development Center, Lonavla.

5.3 Training and Development in Neyveli Lignite Corporation

NLC is a Navratna Industry, founded in the year 1956. It generates power from coal. The main activity of NLC is lignite extraction and power generation using lignite excavator. It also sells raw lignite to small scale industries to use it as a fuel in production activities. It is head quartered at Neyveli, Tamil Nadu, South India. It has around 17,500 employees which include 4,200 executives 8,100 non-executives and 5,200 labourers. Quality circle activities are very popular in NLC and it offers various in-house training programs through its Employee Development Centre. It also deputes its employees for training to various private and government institutes. NLC in-house training program covers wide range of topics like individual development programme, functional development programme, material management programme, industrial psychology, environmental psychology and computer related programme etc. Selected workers, executives and supervisors are sent to foreign countries to acquire skill on design erection and maintenance operation on equipment and machinery. The graduate engineers and executive trainees are also given one year training. The company offers workers education scheme through its two week training program followed by one week industrial tour. Special programmes in the form of workshops, seminars and symposiums are also conducted for its suppliers to share information about best business practices. Employees are encouraged to learn Hindi language through its one month/ 60 hours training programme. The company's inter organisation training programme helps employees of nearby organisations to come and learn from NLC employees.

5.3.1 Training and Development in Hindustan Petroleum Corporation Ltd

HPCL founded in the year 1974 is an Indian state owned oil and natural gas company having head quarter at Mumbai, Maharashtra. It is one of the Navratna industries of India. HPCL has been ranked 260th in the Fortune 500 ranking of world's biggest corporation in the year 2013 and 4th among Indian companies in

the year 2012. As of 2012 it had more than 11,000 employees. 'Samevesh' is an induction or orientation programme offered to new employees to offer a sense of belongingness. Supervisors are equipped with function specific inputs and job related technical skills. Similarly, through project 'Akshay', the leadership development programme is offered. HPCL nominates officers for external seminar and conferences in connection with their function required. Advanced management courses are offered for their executives with the help of reputed B-Schools. Selected employees are sent on study tour to enrich their knowledge and skill by sending them within and outside the country. It offers E-Learning programmes on various topics including project management and supply chain management. It has established learning centre in all zones and in its corporate head quarter office providing internet, books and CDs. Under Education Refund Plan (ERP) sponsorship for higher studies is made by the company. The company also provides study leaves to encourage employees to pursue higher studies.

5.4   Training in Indian Service Sector

The training and development efforts are very much required in the Indian service sector as it provides employment to large number of people and is growing faster. Here the training practice is offered in two major industries viz., banking and insurance are highlighted in the following paragraphs.

5.4.1   Training in Insurance Sector in India

The Indian and foreign direct investment is increasing in India in the past few years in various sectors including insurance sector. Job opportunities are increasing day by day. India's life insurance sector with 360 million policies, consists of 52 insurance companies, out of which 24 are in life insurance business and 28 are in non-life domain. The life insurance industry in India is expected to grow at a rate of 12 to 15% in the next five years. The industry plans to reach the peak level by 2020, and has the potential to achieve the US $1 trillion mark in the next seven years. This optimistic outlook is helped to a large extent by the Government of India's supports and efforts to strengthen the sector. The Union Cabinet in July 2014 approved a proposal to relax Foreign Direct Investment (FDI) limit in the domestic insurance sector to 49% from 26%, expressing very clearly the government's intent to attract capital and investment into the sector. Insurance sector in India, both the Life Insurance Corporation of India (LIC) and General Insurance Corporation of India (GIC), is organizing skill training to the various levels of

employees on wide range of topics. Managers are offered training in various concepts like understanding customer needs, developing products, marketing and sales promotion, supervisory skills, channel management skills and finally with leadership and management skills. Training offered for advisor/agents are on understanding insurance concept and product, financial concepts such as Internal Rate of Return (IRR), Price Value (PV) ratio, financial planning of customers, sourcing the customers, communication skills and personality development.

The topics of training offered to Asset and Portfolio managers are on portfolio management skills, risk management skills, ability to determine asset mix and financial management concepts. Training offered for claims manager are on documentation skill, legal norms, coordination skills, problem solving skills, computing and management skills.

5.4.2   Training in Banking Sector

Banking sector in India is playing a pivotal role in India's economic development and has a total workforce of 1.17 million (2013) as per Wikipedia. The Indian banking sector is likely to hire 1 million new candidates in the next five years for its business expansion and hence it is essential to know the skill requirement for different positions in the sector.

In a research study conducted by Chackochan J. Njavallil (2007) the training areas preferred by the employees in public sector banks and new gen banks has found that in the case of public sector banks the order of preference from most important to least important is. 1. Skill in using various computer packages, 2. Product knowledge, 3. Inter-personal and communication skill, 4. Public speaking skill, 5. Leadership and team working skills, 6. Managerial skills and 7. People/customer relation skills. In the case of new generation banks, the order or preference is: 1. Managerial skills, 2. Product knowledge, 3. Public speaking skills, 4. Leadership and Team working skills, 5. Skills in using various Computer packages, 6. Inter-personal skills, 7. People and Customer relation skills. Various agencies also offer training programmes. Some of the major training agencies involved in training of banking personnel in India are:

- National Institute of Bank Management, Pune
- Administrative Staff College of India, Hyderabad
- College of Agricultural Banking, Pune
- Bankers Institute of Rural Development, Lucknow
- Institute for Development and Research in Banking Technology, Hyderabad

- Indian Institute of Banking and Finance (IIBF) Mumbai
- Institute of Finance, Banking and Insurance (IFBI)

6   Training Budget of IT Companies

A press release in 2007 said the top five software and IT companies namely TCS, Wipro, Infosys, HCL and Cognizant alone spent around $ 438 million during the financial year 2007–08 for training around 0.1 million fresh engineers hired by them. Mr Kiran Karnik, the president of NASSCOM (National Association of Software and Service Companies), has said that

> *"Indian education system is not market responsive and drastic reforms are required in education system in schools and colleges to understand the industrial needs. Lack of skills and technical knowledge tax the IT firms." (Chaudary 2007)*

The well-known consulting companies like Deloitte and PwC say that currently, Indian IT and ITES companies are spending anywhere between 3 to 3.5% of their payroll costs in training talent, which has to be increased to 5 to 6%. Ms. Padmaja Alaganandan, Executive Director, consulting, PwC consulting, says that "the learning and development cost in India is around 3.5% of the payroll". She pointed out at a recent AIMA (All India Management Association) conference that the "corporate India needs to focus more on this than companies in mature markets and should allocate at least 5-6% of payroll costs on training" Prayag (2012). According to the American Society for Training and Development, companies in USAs spend around 3 to 4%. The initial budget allocation for skill development by Government of India towards NSDC was Rs. 10 billion and later it was doubled in 2013 union government budget.

7   E-Learning – A Strategic Training Tool

E-Learning has assumed much importance in the recent past, especially in IT industry. E-Learning is the convergence of information and communication technology.

E-Learning is said to be one of the fastest, simplest and low cost method of delivering education and training. E-Learning overcomes various barriers like physical distance, time, personal and official convenience of both trainer and trainee, learning psychology and budget allocation and investment on physical infrastructure. Though the initial investment is more, the return on investment in the long run is more.

Various research and marketing studies have been conducted on the benefits of E-learning and some of them are highlighted below. The E-Learning

- increases 26% revenue generation per employee (The Business Impact of Next-Generation eLearning 2011).
- provides 35% improvement in time management, 32% improvement in introducing new products and services and 32% faster role out of IT systems (Towards Maturity Report 2012).
- helps companies to boost 50% of its existing productivity, 26% in overall cost saving, it saves 40% to 60% of time is saved when compared to traditional classroom training (Brandon Hall study).
- increases employee retention rate from 25 to 60% (E-Learning – A Strategy for Maximizing Human Capital in the Knowledge Economy, Research Institute of America).
- providing a competitive advantage in their particular market to 72% of the organisations surveyed (Certifyme.net).
- can help companies boost productivity by 50%. Every $1 spent in E-Learning results in $30 of productivity (The Value of Training - IBM Report).
- boosts 18% employee engagement (http://mollyfletcher.com/blog/3-reasons-to-implement-e-learning-in-your-organisation/).
- consumes an average of 90% less energy and produces 85% fewer CO_2 emissions per student than conventional face to face courses while producing and providing E-Learning courses, according to Britain's Open University study (Knowledge Direct Web).

Hence Indian companies are also using E-Learning as a major tool to scale up their training efforts. The future in E-Learning will concentrate on micro learning, gamification (using games to train and teach), personalised learning, automatic learning, experiential learning etc.

8   Mentoring – A Tool for Training

Concept of mentoring is not new to India as it was practiced earlier in the name of Guru-Sishya Parampara (teacher-student tradition). In the famous Indian epic Mahabharat, Lord Krishna acted as mentor of PanchaPandavas and Chanakya, acted as an intelligent minister who was also a mentor to King Chandragupta Maurya. Time has changed but contexts have not. Under mentoring, a person of high experience with learning ability shares some of the most important and best experience,

values, skills and knowledge to a less experienced employee based on his real life experience on learning. Concept of mentoring includes coaching, facilitating, counselling and networking. A research study conducted by DebashmitaTripati at SatguruPratap Singh Apollo hospitals found that employee attrition rate was reduced by 15% in 2011 as compared to 2010 attrition and the administrative errors were reduced by more than 15.3% due to mentoring efforts. Mentoring is emerging as a powerful tool in HRD in imbibing organisational values, for clarifying vision and mission of organisation and familiarising organisation culture, career development and growth. Indian companies of all types and sizes invariably adopt mentoring system.

9   Training Evaluation in Indian Corporate Houses

There is an old axiom 'nothing will improve until it is measured'. It is very true that the training programmes have to be evaluated to know the desired outcomes. In other words, the training evaluation helps to understand the impact of training on individual, group and organisation as a whole. Even-though several methods are available to assess the impact of training programmes in organisations, unfortunately there is no one universally acceptable evaluation method like that of no best way of training employees. The study units evaluate the effectiveness of their training programmes conducted by them by way of direct observation, feedback from immediate supervisor, self-evaluation by the trainees, performance reports, employees' survey, training audits etc. Indian companies are also using some of the well-known training evaluation techniques such as Kaufman's Five levels of evaluation, Philip's five level ROI framework, CIRO's four level of evaluation of training impact and Kirkpatrick's four level of evaluation of training impact.

10   Major Issues faced in Training and Retraining of Employees in India

The Indian companies do face various challenges in offering training programme which includes low budget allocation, lack of faith in training outcomes by top level managers, lack of adequate infrastructure inside the organisation, fear of loss of production and productivity and profit, lack of interest of trainees etc.

11   Suggestions, Recommendations and Conclusion

India will pass through the golden period in the next 10-20 years. By a systematic planning, committed and dedicated efforts of all the stakeholders' viz. government at national level - both at centre and state level, private employers and employees, India can reap the democratic dividend to its advantage. The dream of India to become a world super power can be realized in the next 10 to 20 years by skilling the Indian workforce in a most effective manner through scientific planning and execution. Some of the suggestions for enhancing the employability of the youth entering in to Indian job market and equipping the existing workforce to improve their productivity are given below:

- Vocational education should be made compulsory right from 8th standard at the school level. Interests and abilities of the individual should be identified through proper diagnostic test to offer basic, specific and suitable courses on a particular trade during the remaining five years of their schooling.
- As a continuation of skill learning, at college level, each and every programme must have specific courses which can strengthen the innate abilities and skills of the students in a particular trade, based on his career goals. Internships, summer and winter projects at university and college level should be made compulsory and it must be practiced in its true sense and evaluation should be done by nearby industry and business representatives as external examiners which may help them in campus placements also.
- Under CSR initiative, all the Indian corporate may be requested to adopt at least 'one school', 'one college/university' and 'one village' to impart technical training to produce more skilled workforce.
- The government budget allocation at national and state level for vocational and technical education should be enhanced considerably.
- Manpower planning and skill gap analysis should be made continuously and the industry requirements and expectations should be communicated to the academia every now and then through a well-designed system to plan and offer suitable curriculum at school, college and university level.
- Presently, the employment exchanges in India are not able to help considerably the registered unemployed in securing jobs through them. Hence they may be converted in to skill development and career counselling centres.
- By amending The Companies Act, corporate houses should be made to spend at least 3 to 5% of their total earning for training and development

to improve their production and productivity. Expenses on training should be considered by Indian employers as an investment for long-term success of the organisation.

- Considering the huge penetration of internet, computer and also the increasing use of mobile phones by Indian population, E-Learning, mobile learning and other modern forms of learning should be used by all the sectors and agencies to scale up the training outputs.
- Mahatma Gandhi, the Father of India once said "India lives in villages". Even today majority of the Indian population lives in rural areas, without proper basic education and skill training. Skill development centres should be established at every village Panchayat or block level across India to train the unemployed rural youth and existing work force as a part of increasing the overall skill building capacity of India. Skill development should be considered as No. 1 in the agenda of central and state governments to increase employability which in turn will help us to achieve the overall economic and social development.
- In all types of organisations further learning or employee skill development should be made mandatory. A minimum of seven days in a year must be spent to learn new skills, knowledge on recent development in their respective field of work by the employees. Job promotion and annual hike in salary should be connected with the new learning made by the employees in the particular year and work performance. Corporate must be advised to support or sponsor fully or partially at least 1% of its total workforce for higher education every year. This provision should be extended to government departments and public sector undertakings also.
- In the recent times, IT companies like TCS, Accenture, Wipro, Infosys and IBM are advancing a portion of fresher's training, to the college and university campuses itself where they do campus hiring. This model is said to be very successful and helps them in reducing training cost and time, and provides 'ready to deploy manpower' with their clients. This can be followed by other companies which will fix more responsibility on the part of academia to produce better inputs from their campuses to the world of employment.
- Industrial heads, business leaders and successful entrepreneurs should be included in curriculum planning at all levels of education. The curriculum of all the school, college and university education should be revised in such a way that 50% of time spent on learning is allotted for learning one or more skills of their interest to achieve their career goals.
- 'Skill registry' should be created and maintained at regional, district, state and national level in which skills needed for different occupations should

be clearly stated and number of skilled people available in the region should be maintained. For this a separate new ministry in the name of 'Ministry of Skill Development and Employment' should be established to pay full attention on this most pressing agenda of India. (It is very happy to note that while drafting the final copy of this article, Government of India has formed a separate ministry and appointed a minister exclusively for skill development and entrepreneurship development in India, which is suggested here.)

- The present system of framing a common syllabus for all affiliated colleges and universities by State universities should be changed in such a way that the individual colleges are given freedom to offer skill based programmes and courses based on local and regional employment needs.

To conclude, the unemployable young Indians, who are considered as liabilities today, should be converted into valuable assets of tomorrow by skilling them through a concerted and coordinated effort by all the stake holders of the society, which will help us to realise the today's dream in to tomorrow's reality.

"High achievement always takes place in the framework of high expectation." (Charles Kettering n.d)

References

Aditya Birla Group (2015): General Information. URL: http:// adityabirla.com/about-us/overview.

All India Council for Technical Education (AICTE) (2012): Approval Process Handbook (2012-13).URL: http://www.aicte-india.org/downloads/approval_process_12_13_051011.pdf.

Bharadwaj, R., Kadam, S. and Kumar, P. (2011): Concept Note on Need for Vocationalisation of Education in India. URL: http://www.scdl.net/downloads/vocationaluniversityconceptnote.pdf.

Chandra, N. (2013): Do Employment Exchanges serve job seekers? URL: http://www.careers360.com/Universities/Do-Employment-Exchanges-serve-job-seekers.

Chaudary, D. (2007): Top 5 IT firms spend $438 mn on training. Live Mint, 12th November. URL: http://www.livemint.com/Home-Page/0nC9vwCq1Om392tPWvwjVO/Top-5-IT-firms-spend-438-mn-on-training.html.

Confederation of India Industry (2005): Manufacturing Innovation: A Senior Executive Survey. A Report By CII and the Boston Consulting Group. URL: http://cii.in/uploads/CII-BCG%20Sr%20Executive%20Survey%20-%20Mfg%20Innovation%20report%202005-4th832.pdf.

Confederation of Indian Industries (CII) and Boston Consulting Group (BCG) (2014): CII 13th Manufacturing Summit (Make In India: Turning Vision into Reality). URL: http://www.bcgindia.com/documents/file176705.pdf.

CXOtoday News Desk (2014): Indian IT Sees High Attrition a Market Rebounds. URL: http://cxotoday.com/story/indian-it-sees-high-attrition-as-market-rebounds/.

Deloitte (2013): A report on global manufacturing competiveness index 2013. URL: https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Manufacturing/gx_2013%20Global%20Manufacturing%20Competitiveness%20Index_11_15_12.pdf.

DSPD and ILO (2011): Labour Market Performance and the Challenges of Creating Employment in India. URL: http://www.ilo.org/wcmsp5/groups/public/ed_emp/emp_policy/documents/meeting-document/wcms_162963.pdf.

Dskmag (2009): To quote, unquote and requote – 21st Century illiteracy? URL: https://deangroom.wordpress.com/2009/12/21/to-quote-unquote-and-requote-21st-century-illiteracy/.

Essar Group (2015): General Information. URL: http://essargroup.com.

Global Manufacturing Leadership Programme (2015): Application Form. URL: https:// abgmlp.adityabirla.com/a-world-of-opportunities.php.

Government of India (2008a): National Conference on Technical Vocational Education, Training and Skills Development: A Roadmap for Empowerment. New Delhi: Ministry of Human Resource Development.

Government of India (2008b): Union Budget and Economic Survey. URL: http://indiabudget.nic.in/es2007-08/esmain.htm.

Government of India (2011): Annual Report 2010-11. New Delhi: Ministry of Labour and Employment. URL: http://labour.nic.in/upload/uploadfiles/files/Reports/ANNUAL% 20REPORT%202010-2011.pdf.

Government of India (2013): Report on Youth Employment-Unemployment Scenario (2012-13): URL: http://pib.nic.in/newsite/PrintRelease.aspx?relid=100894.

Government of India (2015): General Information. New Delhi: Planning Commission. URL: http://planningcommission.nic.in.

ICRA Management Consulting (2010): The Skill Development Landscape in India and Implementing Quality Skills Training. URL: http://www.ficci.com/SPdocument/20073/IMaCS.pdf.

Kettering, C. (n.d): Charles F. Kettering quotes. URL: http://www.qotd.org/quotes/Charles.F.Kettering.

Larsen & Toubro (2015): General Information. URL: http://larsentoubro.com.

Mason, A. and R. Lee (2006): Reform and support systems for the elderly in developing countries: capturing the second demographic dividend. GENUS LXII (2): 11-35.

Mukerji, S. and Tripathi, P. (2010): Using technological interface in vocational education in India.URL: http://wikieducator.org/images/f/f1/Siran_Mukerji.pdf.

Nasscom-McKinsey (2005): Extending India's Leadership of the Global IT and BPO Industries.

National Skill Development Corporation (NSDC) (2009): Human Resource and Skill Requirements in the Banking and Financial Services Insurance Industry: Study on Mapping of Human Resource Skill Gaps in India till 2022. URL: http://www.nsdcindia.org/sites/default/files/files/BFSI-2009.pdf New Delhi: NSDC.

National Policy on Skill Development (2009): Benchmarking of Skill Deficit and Plan to achieve target by 2022. Chapter six. URL: http://labour.nic.in/upload/uploadfiles/files/policies/national-skilldevelopmentpolicymar09.pdf.

Njavallil., C. J. (2007): Training and Development of Bank Employees: A Comparative Study between New Generation Banks and Public Sector Banks. PhD Thesis, Mahatma Gandhi University.

Pillai, H.K. (2014): India's Vocational Education Capacity to support the anticipated Economic Growth.URL: http://eprints.qut.edu.au/72103/1/72103_PILLAY_BHP_Report_Final_Report.pdf.

Planning Commission (2009-2010): Employment and Skill Development. URL: http://planningcommission.nic.in/hackathon/Skill%20Development.pdf.

Prayag, A. (2006): India's growing employment market presents an opportunity for the budding training industry in the country, Business Line, 9th October. URL: http://www.thehindubusinessline.com/todays-paper/training-india-inc/article1756669.ece.

Prayag, A. (2012): Indian firms need to double spend on training. Business Line, 21 March. URL: http://www.thehindubusinessline.com/economy/indian-firms-need-to-double-spend-on-training/article3024495.ece.

Sundaram, S.K.G. (2000): ILO Organisations working for the unorganised labour. URL: http://library.fes.de/pdf-files/netzquelle/a01-02768.pdf.

Symbiosis (2010): Concept Note on Need for Vocationalisation of Education in India. URL: http://www.scdl.net/downloads/vocationaluniversityconceptnote.pdf.

World Bank (2006): Skill Development of India-The Vocational Education and Training System. URL: http://info.worldbank.org/etools/docs/library/235724/skills%20development%20in%20india%20the%20vocational%20education%20and%20training%20system.pdf

Informal Learning: Education and Skill Development in India's Informal Sector

Joginder S. Sodhi and Antje Wessels

"People learn constantly, everywhere and all the time." (Werquin 2010)

The paper is divided in seven parts. Part I is an introduction, which gives general information about the informal sector. Part II provides the concept of informal learning with different definitions on the informal sector. After giving a brief overview on different definitions, Part III describes forms of the Informal Sector Training. Part IV highlights the learning processes and possibilities to enter the formal sector. Part V is more focused on gender perspectives in terms of the profile of women in the informal sector. Part VI presents a study on skill gaps in informal sector. It deals with the objective of assessing the skill gaps to enable the skill development agencies to bridge this gap (Sodhi 2014). Finally, Part VII concludes the topic on education and skill development in India's Informal Sector.

1 Introduction

The OECD reports that 1.8 billion people, or about 60% of the global labour force, work without a global contract or social security coverage. In terms of informal employment, India ranks first compared with the other South and Southeast Asian countries and fifth among the 49 developing countries studied in this report (Bairagya 2012).

The Indian informal sector is huge; almost more than 90% of India's informal workforce is working as self-employed and casual workers and almost 50% of the national income emerges from this sector (CII 2015). The Sengupta Committee (2009) report had highlighted that only 2.5% of the informal sector workers have received any kind of formal training while 12.5% had received non-formal training (Sodhi 2014). The informal economy is a very important sector of the Indian economy. The National Council of Applied Economic Research estimates that the informal sector or the so-called "unorganised sector" generates about 62% of GDP, 50% of national savings and 40% of national exports (ILO 2002).

Classical economists considered this sector as a transitory phenomenon as the workers shift to the formal sector with economic development. However, the experience of India and many other developing countries has defied this conventional wisdom. In India, there has been a similar trend as its size has marginally reduced from 87.0% in 2004-05 to 82.7% in 2011-12 along with economic development (Table 1).

	Organised	Unorganised	Total
Formal	32.06 (52)	1.35 (0.3)	33.41 (7.3)
Informal	29.54 (48)	396.66 (99.7)	426.20 (92.7)
Total	61.61 (13)	398.01 (87)	459.61 (100)
	Organised	Unorganised	Total
Formal	37.18 (45.4)	1.39 (0.4)	38.56 (8.1)
Informal	44.74 (54.6)	390.92 (99.6)	435.66 (91.9)
Total	81.92 (17.3)	392.31 (82.7)	474.23 (100)

Table 1: Formal-Informal Employment across Organised-Unorganised Sectors (in million). Source: Computed from NSSO unit level data (2004-05 and 2011-12)

Many indigenous and tribal people are working in the informal economy. These workers often remain trapped in conditions of vulnerability and insecurity, as a result of discrimination in access to formal labour markets. The reasons for their vulnerability are (a) irregular work, (b) low economic status, (c) little or no bargaining power, (d) lack of control over earnings, (e) need to balance paid work with care for children and homework, (f) little or no access to institutional credit, training and information, and (g) lack of assets (Mohapatra 2012).

As already mentioned, there will be a focus on women, which are also disproportionately represented in the informal economy. Most of the females are contributing family workers, while males work predominately as workers. Additionally most of women earn less than men. Women, however, spend fewer hours in work than men, in part due to the time they spend in unpaid care work. Women's work may be restricted to own-account or home-based employment, besides their work outside their living environment. Women, by and large, are also clustered in traditional female-oriented economic jobs such as tailoring and cooking. All these factors influence women's risk of poverty and marginalisation within the informal economy (ILO 2013).

Out of this, a large demand-supply gap of skilled workforce exists in the country. The current supply is unable to meet the ever-growing labour demands, both in quality and numbers. NSSO shows that the outreach of vocational education was 1% and 5% for rural and urban educated, respectively. 1% and 7% males in rural and urban areas respectively had undergone vocational education and training but in case of females, it was 1% and 3% in rural and urban areas, respectively (NSSO 2010; Gautam and Navin 2014).

2   Concept of Informal Learning – Different Definitions on Informal Sector

Breman (2013) explains the concept of Informal Learning as followed:

> *"Informality is a concept that does not only concern labour but also intrudes into the domains of politics and governance: employment as well as capital are outsourced from the formal economy".*

In 1993, the International Labour Organisation (ILO) proposed this general definition of the informal sector:

> *"A group of household or unincorporated enterprises that includes informal self-employed workers as well as the business enterprises of informal employers."*

The informal learning according to UNESCO is defined, as

> *"Informal learning is unintentional learning that occurs in daily life, in the family, in the workplace, in communities, and through the interests and activities of individuals. Through the recognition, validation and accreditation (RVA) process, competences gained in informal learning can be made visible, and can contribute to qualifications and other recognitions. The term experiential learning is also used to refer to informal learning that focuses on learning from experience". (UNESCO 2012)*

Another definition of Mitra (2002) divides the informal sector in three different categories:

    i.   The small or micro-enterprise sub-sector is considered the economically stronger and more dynamic element. Typically regarded as an extension of the formal sector, it is held that a significant part of it is usually connected with the formal sector through various types of

sub-contracting arrangements. A majority of such enterprises, how-
ever, have an independent character and cater to markets at the lower
end of the economic scale.

ii. The household-based sub-sector, where most of the activities are car-
ried out by members of the family (largely unpaid female labour).
This sub-sector extends to many different markets, activities, seasons
and locations. Most households cannot break out of low incomes and
poverty but some households catering to strong markets may evolve
into more specialised enterprises.

iii. The independent service sector, comprising domestic helpers, street-
vendors, cleaners, street barbers, shoe-shiners and so on, as well as
those referred to as casual labour. Female labour is highly repre-
sented in many of these occupations. In terms of size, they constitute
the bulk of the informal sector. The occupation is often seasonal,
changing, though the change is normally within the boundaries of the
sub-sector itself. The skills required by these occupations are the
lowest in the informal skill hierarchy.

In addition to the division of Mitra (2002), the International Conference of Labour
Statisticians (ICLS) spelled out six different categories based on the expanded
concept. It includes the following categories of work:

i. Own-account workers (self-employed with no employees) in their
own informal sector enterprises;

ii. Employers (self-employed with employees) in their own informal
sector enterprises;

iii. Contributing family workers, irrespective of type of enterprise;

iv. Members of informal producers' cooperatives (not established as le-
gal entities);

v. Employees holding informal jobs as defined according to the em-
ployment relationship (in law or in practice, jobs not subject to na-
tional labour legislation, income taxation, social protection or enti-
tlement to certain employment benefits (paid annual or sick leave,
etc.);

vi. Own-account workers engaged in production of goods exclusively
for own final use by their household (ILO 2013).

In the Indian context,

> *"Almost all 'apprenticeship' in India has historically been informal in nature and practised in micro-enterprise for centuries – totally outside the purview of any law, and beyond the scope of any regulation." (Mehrotra 2014: 64)*

Recent studies (Mehrotra et al. 2014) estimate that between 2012 and 2022, India's over 300 million youth people will need to be skilled. It is estimated that more than 100 million young people will be covered in the general academic stream on the lower secondary level (VII and IX standards). Also, there are those who have undergone informal training (e.g. 'training on the job'). Out if this approx. 55 million will need formal training.

3   Informal Sector Training

Informal learning impacts the informal sector training. Informal learning is learning that results from daily activities related to work, family or leisure (see chapter 9). It is not organised or structured in terms of objectives, time or learning support (Cedefop 2008).

When we are talking about informal learning, the greatest challenge India faces, is how to recognise learning that occurs outside the formal education. In a study of "recognition, validation and accreditation (RVA) of learning in formal, non-formal and informal setting settings, Singh and Duvekot (2013: 14) argue that,

> *"formal learning is not sufficient to facilitate and utilize the full human potential of any society. RVA is an important instrument for comparing different forms of learning, in order to eliminate discrimination against those who acquire competences non-formally or informally. Individuals who have had limited access to, or low achievement in, formal education and training, or who learned skills predominantly in the workplace or other settings outside the formal system, are often disadvantaged in further learning and training, and in the labour market."*

And when we are talking about informal training, the focus of skill development based on the needs of the informal sector exists through a range of programmes under the aegis of different ministries of the government. Some of these programmes, which are running besides the formal system, are the following:

- *Informal Apprenticeship*
  This is based in the concept of "learning by doing". Learning by doing can be understood as a process of occurring work of the trainer, practicing and participation in the working process. That means that the informal

apprentice is involved in the production of an unorganised company. On the one hand the apprentice is involved in different processes of work and on the other he undergoes training by a master craftsmen. In this way the apprentice can upgrade his skills (Mehrotra 2014).

▪ *Community Polytechnic*
These are short-term, non-formal, modular courses of 3-6 months duration, depending on the local needs and commensurate with the available local resources with proper structures (AICTE 2014). The target groups are generally unemployed youth, school and college dropouts and other underprivileged segments of the rural population. They can be skilled in various trades and multiple skills. The scheme of Community Polytechnics was started under a direct central government's assistance scheme in 1978-9 in 35 polytechnics. As per status of 2013 there are 617 AICTE-approved Community Polytechnics (Mehrotra 2014).

▪ *Jan Shikshan Sansthan (JSS)*
This programme, launched as an Adult Education Programme of MHRD, established to provide vocational training to non-literate, neo-literate, as well as school drop outs by identifying skills as would have a market in the region of their establishment (MHRD 2015). It targets the adults and young people who have migrated from urban and rural areas. This scheme has acted as a district-level resource to organise JSSs were functioning in various states of the country (Mehrotra 2014; Singh 2013).
The scope of work of JSSs include the following:
- ▪ Develop/ Source appropriate curriculum and training modules covering vocational elements general awareness and life enrichment components.
- ▪ Training equivalent to courses designed by the Directorate of Adult education, National Institute of Open Schooling (NIOS) and Director General Employment & Training.
- ▪ Provide training to a pool of resource persons and master trainers for conducting training as also availability of infrastructure and training – specific equipment.
- ▪ Administer simple tests and award certificates
- ▪ Network with employers and industries for trainees to get suitable placements (MHRD 2015).

▪ *National Institute of Open Schooling (NIOS)*
The NIOS formerly known as National Open School (NOS) was established in November 1989 as an autonomous organisation in pursuance of National Policy on Education 1986 by MHRD (NIOS 2015). This pro-

gramme imparts education through open and distance modes from primary to senior secondary level. It has the directive to offer vocational education and training programmes to general and prioritised groups (scheduled castes, scheduled tribes, women, rural people, disabled, and disadvantaged groups of the society) through a network of its study-cum-training centres known as Accredited Institutes (AIs). The NIOS offers 82 vocational education courses though its institutes. It has a network of 11 Regional Centres and about 2,067 study centres. In 2012, there were about 1,063 AIs. The cumulative enrolment in VET during the preceding five years is 93,000. The average duration of these courses is shorter than ITIs/ITCs (see chapter 4) (Mehrotra 2014 and Singh 2013).

The vision of NIOS is "sustainable inclusive learning with universal and flexible access to quality school education and skill development". (NIOS 2015)

The mission can be understood as:

     i.   Providing relevant, continuing and holistic education up to pre-degree level through Open and Distance Learning System

    ii.   Contributing to the Universalisation of School Education

   iii.   Catering to the educational needs of the prioritized target groups for equity and social justice (NIOS 2015).

▪ *Shramik Vidyapeeths*

The Department of Education has initiated a scheme of non-formal, adult and continuing education for the urban community through the Shramik Vidyapeeths. During 1997-98, 58 such institutes were set up. One Hundred ITIs exclusively provide vocational training for women. The thrust of the scheme is to provide part multidimensional or polyvalent training and education to the urban community through specially tailored programmes aiming at providing knowledge and skills in an integrated manner. Under the scheme, courses of varying duration to develop vocational and technical skills for income generation activities are conducted. Shramik Vidyapeeths offer around 225 different vocational training programmes ranging from candle and agarbatti4 making to computer courses (Mitra 2002; Krishna 2005).

▪ *Khadi and Village Industries Commission (KVIC)*

KVIC established under the Khadi and Village Industries Commission Act, 1956, it is a statutory organisation engaged in promoting and developing Khadi and village industries for providing employment opportunities in the rural areas, thereby strengthening the rural economy of the country. The broad objectives of the scheme are:

- ▪ The social objective of providing employment.
- ▪ The economic objective of producing saleable articles.
- ▪ The wider objective of creating self-reliance amongst the poor and building up of a strong rural community spirit (MSME 2008).

- ▪ *Krishi Vigyan Kendras (KVK)*
  In 1973 the Krishi Vigyan Kendras scheme was established and implemented. The Indian Council of Agricultural Research (ICAR) is the founder and financer of this programme. KVK places a special emphasis on training and education of farmers, entrepreneurs, farmwomen, rural youth, financial institutions extension functionaries as well as voluntary organisations. As per now, there are 641 training institutes spread out over India (ICAR 2010).

- ▪ *Swarnjayanti Gram SwarojgarYojana (SGSY)*
  The Ministry of Rural Development establishes the Swarnjayanti Gram Swarojgar Yojana scheme. The objective of SGSY is to bring the assisted poor families (Swarozgaries) above the Poverty Line by ensuring appreciable sustained level of income over a period of time. This objective is to be achieved by inter alia organising the rural poor into Self Help Groups (SHGs) through the process of social mobilization, their training and capacity building and provision of income generating assets (see chapter 10) (MRD 2011).

- ▪ *Prime Minister Rozgar Yojna (PMRY)*
  Prime Minister of the India established the scheme in1993 for giving self-Employment to learned jobless Youth in the country. This program is to give self-employed breaks to one million jobless educated adolescents in the country. This scheme is known as PMRY. An objective of the scheme has been intended to give employ to over million People by starting 700,000 micro ventures by the jobless educated youth. It recounts to the starting of self-employment schemes through commerce, service & business means (MSME 2008).

4   Learning Processes and Possibility to enter the Formal Sector

There are different schemes in the informal training sector, which will support people from rural areas to have the possibility of entering the formal sector. It is important to build skill development schemes, which would help learners to complete secondary school, or to increase their employability. So, that is the reason, why India focuses on school education on the one hand and on skill development

schemes on the other hand. All these skill development schemes mentioned above are run by different institutions and departments under different ministries to support skill training, assessment and certification. These programs are in view of the limitations of people in the informal sector. According to King (2011),

> *"the lack of formal qualifications makes workers vulnerable; they earn lower wages, their productivity is low; they are exploited by their employers, and they are often disadvantaged in gaining access to formal education".*

4.1   Skill Recognition in the Informal Sector

To give informal learners the chance to grow, the first thing which is already done by government, is quality training in different trades, which are created on the needs of the trainees (need-based training). After undergoing the training, it is important to make sure that participants have understood theory and practice of contents. In regard of this point, it is important that the trainer/teacher itself is well trained on pedagogy. When trainings are organised for the rural youth, a trainer/teacher should prepare the content with different media and methods, to get the attendance of the trainees. Also, it is important that the trainees can understand on which they are trained. That means a trainer/teacher should be able to speak the regional language.

Different methods can be used to create a good learning environment. The ability of 'learning by seeing' and 'learning by doing' are opportunities to make aware of technologies. It is essential to create an action-based learning design by informing, planning, acting, applying, controlling and evaluating.

Evaluating can be understood as self-evaluation of learning processes or certification of training. There is a need to certify the learning outcome to give the trainees the chance to enter the formal education stream or for increasing their employability.

The assurance of knowledge is another significant aspect. Training courses should include post-trainings and follow-up programmes to strengthen the employability (King 2011).

5   Gender Perspective in Terms of the Profile of Women in the Informal Sector

Women in the informal sector need a special set of learning for entering into productive markets based on their socio-cultural milieu and low education levels. The

government of India has been providing such learning and training in the informal sector but it has not been sufficient to cater the need of about 200 million workers in this sector. Fortunately there are other private institutions and NGO's, which are complimenting the efforts of the government.

Women in India constitute 48% of the population. There is a significant overlap between being a woman, working in the informal sector and being poor. Women worldwide are under-represented in high-income activities and over-presented in low-income activities notably (Chen et al. 1999).

Women Literacy and Learning: In the last decade he literacy rates for girls have increased faster than the boys'. However, one-third of them are still illiterates and their education levels are not lower than the boys'. But almost two-thirds drop-out before 8th standard (GoI 2011). Consequently the Gross Enrolment Ration (GER) in higher education (12th standard and above) is only 16.5%, which is also less than the males. UNESCO (2014) report states that it will take another 56 years for India to provide education to all females.

Skill development of women in the informal sector is provided by the Ministry of Labour and Employment (MoLE) and a number of other ministries. The Modular Employable Skill (MES) program is a program run by MoLE. It provides a minimum of skill set which is required to get basic employment. Also the industry is involved in this program. Now the MES program allows skill-up gradation, multi-entry and exit and lifelong learning in a flexible manner. It also allows recognition of prior learning. Another program called ILO/SIDA provides vocational education exclusively for women. The Department of Education has a scheme called Sharamik Vidyapeet (see above).

However, despite these programs, 95.4% of women workers in the informal sector have not received any vocational training as against about 91% of males. Among the few who had received training, only 0.4% had training through formal and the others from informal channels. So, most of them belongs to the informal sector. In urban areas, the percentage of unorganised sector workers is close to 65-70%. As a result, there has been increasing in formalisation of employment over the years (Mohapatra 2012).

The gender prospects of learning are extremely relevant for India's informal sector. Apart from high levels of illiteracy, almost one-third of women are illiterate compared to less than 18% of illiterate males (2013). India has the lowest female participation rates in the world. Only 25% of the workers employed in India are women (GoI 2011). There are several reasons why more women than men are located in the informal sector.

First, women have low decision-making power and often work as marginalized workers (Grabowski 2013). Also, women have no easy access to formal jobs because of the Indian social system. It dictates that women without education

and those who are locally based can't enter the formal system (Singh 2005; Mehrotra and Biggeri 2002). Second, there is an intergenerational bias against women's learning. Gender discrimination starts at a very early stage in the childhood within families. Third, there is deprivation of enlightenment due to illiteracy and lack of exposure. Therefore a large majority had to live and work under the harshest conditions in poverty (ILO 2010). Fourth, women tend to move more often in and out of the labour force in their economically active lives because of balancing work and family responsibilities. Women, therefore, have less chance for lifelong learning to improve their employability.

The government of India has been providing vocational education and training to women in the informal sector. However, its efforts fall much short of the requirements vocational education is also provided by other private players and the NGO's. The study (Sodhi and Ramanujam 2010) examines in depth the efforts of 39 vocational training providers at 14 locations in eight states of India. Based on experiences of the training providers, the study develops a model of providing vocational training to women in informal sector keeping in mind their special needs.

6   The Study

Informal sector workers may not require total inputs as they have already been working and have acquired some skills. However, little is known about their proficiency of skills or lack of it. A study of this nature will help millions of aspiring and already engaged workers to acquire formal skills in the context of the present and the future needs.

A pilot study was undertaken with the objective of identifying the present level of skills and assesses the skill gaps to enable the skill development providers to bridge this gap. The study was carried out in five trades of Motor Mechanic (Automobile/Auto Component) in Ludhiana- Punjab, Mason (Building & Construction) in Noida-Uttar Pradesh, Plumber in Gurgaon, TV repair (Electronics Hardware) in Gurgaon in Haryana and Carpenter (Building & Construction) in Noida, Uttar Pradesh. In each trade, 100 workers were interviewed with the help of a specially designed questionnaire enumerating the total component of skills required for each trade.

6.1   Findings & Implications

The study results provide information about which not much is known as there are fewer studies on the subject. NSDC has done a few studies but more on the quantitative skill gaps. In terms of their background information the study found that most of the respondents belonged to the younger age group (16-35years) with the implication that such workers are going to be in the labour market for over two decades. A higher proportion of them studied up to the eight standard with more of carpenters and masons being illiterates or studied up to the primary level. These workers will not be able to attain vocational education in the formal streams. Most of the respondents, except for the Motor Mechanics, were willing to undertake formal training to bridge their skill gaps. Majority wished to take up part time training and very few opted for the formal sources of training.

These workers will not be able to attain vocational education in the formal streams.

The respondents were also not able to invest much time on further training as most of the Masons and Plumbers opted for training up to 30 days while others opted to undertake training for up to 100 days (Tables 1-9).

No.	Years Trade	15-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	(Fig. in %) 55 & above
1.	Motor Mechanic	4	30	18	17	16	8	7	-	-
2.	Mason	17	15	23	18	8	7	12	-	-
3.	Carpenter	16	44	17	15	5	2	1	-	-
4.	Plumber	9	46	24	13	6	2	-	-	-
5.	TV Mechanic	76	20	4	-	-	-	-	-	-

Table 2: Age group of the Respondents

No. of	Days Trade	Up to 15	16-20	21-25	(Fig. in %) 26-30
1.	Motor Mechanic	-	-	-	-
2.	Mason	-	12	24	64
3.	Carpenter	7	12	45	36
4.	Plumber	4	21	46	29
5.	TV Mechanic	-	-	-	-

Table 3: Average number of Days employed in a month

										(Fig. in %)
No.	State	UP	BR	WB	PB	UK	HR	OR	JH	Others
	Trade									
1.	Motor Mechanic	4	-	-	91	-	-	-	-	5
2.	Mason	44	15	19	-	-	-	-	10	12
3.	Carpenter	57	-	-	-	2	29	-	-	14
4.	Plumber	39	15	-	-	-	11	-	19	16
5.	TV Mechanic	2	-	-	-	-	98	-	-	-

Table 4: State wise of origin of the Respondents

					(Fig. in %)
No.	Education Level	Illiterate	Up to 8th Std.	Up to 10th Std.	11th Std. & above
	Trade				
1.	Motor Mechanic	3	7	41	49
2.	Mason	37	22	27	14
3.	Carpenter	19	13	45	23
4.	Plumber	29	6	54	11
5.	TV Mechanic	-	4	36	60

Table 5: Level of Education of the Respondents

					(Fig. in %)
No.	**Monthly Income (Rs.)**	0-5000	5000-10000	10001-15000	15001 & above
	Trade				
1.	Motor Mechanic	11	23	16	25
2.	Mason	7	67	12	14
3.	Carpenter	7	68	21	4
4.	Plumber	12	60	24	4
5.	TV Mechanic	6	26	26	32

Table 6: Average Monthly Income of the Respondents

No.	Monthly Income (Rs.)	0-5000	5000-10000	10001-15000	(Fig. in %) 15001 & above
	Trade				
1.	Motor Mechanic	5	28	20	47
2.	Mason	7	46	20	23
3.	Carpenter	4	39	15	42
4.	Plumber	3	16	24	57
5.	TV Mechanic	6	26	16	52

Table 7: Average Montly Income of the Family

No.	Willingness	YES	NO
	Trade		
1.	Motor Mechanic	53	47
2.	Mason	93	7
3.	Carpenter	95	5
4.	Plumber	91	9
5.	TV Mechanic	98	2

Table 8: Willingness to Undergo Training

No.	Institution	NIOS	ITI	Part Time (any-where)
	Trade			
1.	Motor Mechanic	9,4	24,5	72,1
2.	Mason	12,9	31,2	56,9
3.	Carpenter	9,5	26,3	65,2
4.	Plumber	7,9	6,7	85,4
5.	TV Mechanic	10,9	21,7	67,4

Table 9: Institution from Which Willing to Undergo Training

No.	Training days	Up to 10	Up to 20	Up to 30	(Fig. in %) Up to 100	100 days & more
	Trade					
1.	Motor Mechanic	9,4	18,9	20,6	26,4	5,7
2.	Mason	-	12,0	88,0	-	-
3.	Carpenter	4,2	12,5	21,1	24,2	6,0
4.	Plumber	3,3	29,7	56,0	4,4	6,6
5.	TV Mechanic	5,7	7,7	12,2	35,6	31,9

Table 10: Desired Number of Days of Training

6.2 Skill Gaps

Motor Mechanic: The training duration for getting formal certification is entirely a function of the skill gaps. However, the policy makers would also need to orient the curriculum from the perspective of persons wishing to enhance their skills. The data on skill gaps shows overall there was a gap of 48% in their competence of the trade. More specifically, about two thirds had nil or negligible competence of the main parts of and the units attached with the engine of a motor vehicle. Two thirds also had nil or negligible competencies about other aspects like 'meaning of stroke', 'functions of cylinder' and 'components of full supply in diesel engine'. 49% did not have knowledge of the ignition system. Further, 36% of the respondents had nil or negligible competency regarding the 'merits & demerits of the two stroke engine'. One-fourth did not have any competency of the difference between "two strokes and the four Strokes engine". On other aspects like 'thermostat' 'battery' 'reasons and remedies of the injector pressure' a higher proportion of respondents had no/ negligible competence. While there are competency gaps most of Motor Mechanics were unwilling to take up further training *Masons:* Their competency levels were checked on aspects like tools, bricks, cement, mortar, masonry technical terms & safety precautions. Their overall competency gap of all these aspects was 55%. About half or more did not have the competence of various masonry terms, tools & knowledge of storage of cement and ratio of various ingredients of mortar. Sixty percent of them also did not have any competence of the safety precautions to be taken up while on the job. Most of them were willing to take up further training to bridge the skill gaps. *Carpenter:* Their competence was seen on aspects like knowledge of distinction between soft and hard wood, distinction between various units of measurement, knowledge of carpentry technical terms, bugs and worms, tools and instruments and safety precautions. Overall, there was a gap of 39% in their knowledge of various aspects of their trade. The competence gap was the highest on safety norms as about two-thirds had nil or negligible knowledge of this aspect. About half of them also did not have any knowledge of soft and hard wood and tools and instruments like caliper, compass, etc. Over two-thirds had knowledge of bugs & worms and technical terms of their trade. *Plumbers:* The competence level was drawn out on plumbing terms & systems, conversion of units from FPS to MKS, dimensional tolerance while assembling GI pipes and bending & threading pipes. Overall there was a skill gap of 44% in their knowledge. More specially, about one-fifth had nil or negligible competence of bending & threading pipes, over two-thirds had nil or negligible competence of the conversion of units from FPS to MKS and of dimensional tolerance while assembling the GI Pipes. 39% of the plumbers did not at all know the reasons for overflowing from cistern as well as the method of stopping them.

Most of the respondents showed their willingness for training. *TV Mechanic:* Competence levels were assessed on their knowledge of resistance, finding typical faults, instruments, Wattage and replacing defective parts like transistor, Diode & IC from PCB. Overall, there was a skill gap of 48% amongst the TV Mechanics. 30% did not have any knowledge of various measuring instruments and 28% have no knowledge of Wattage of Electric Soldering iron. There were gaps in competence of finding specific faults (38%) and resistance (48%). All of them were willing to take up additional training.

The study results show that despite skill gaps, willingness of such workforce to take up further training cannot be taken for granted. For example while most of Motor mechanics had skill gaps they showed their unwillingness to take up further training. This finding has two kinds of implications. One there has been a lot of debate on the absolute numbers of persons, which would require vocational training. The figure of training 500 million persons has been arrived simply by projecting the number of persons who are and will enter the labor market till 2022 and the assumption that all of them will require vocational education. Second, the unwillingness of the technical persons raises the basic question of leaving them alone with the present level of skill gaps or to take a call on giving them further training. It is important that the policy makers make an effort to understand of the present gaps of such persons and build some incentives considering that they are going to be in the labor market for over two decades and their present level of skills would become obsolete, due to technological advancements in the years to come. The training capsules thus developed would have to be imparted through part time mode as also of the duration which is in sync with the availability of such persons.

7   Conclusion

According to the present status of education and skill development in the informal sector, there is still the need to strengthen the employability in the rural areas. To this effect, the government of India has intensified its efforts and had created a separate Ministry of Skill Development and Entrepreneurship in 2014 with the main objective of co-ordination of all skill development efforts across the country, removal of disconnect between demand and supply of skilled manpower, building of new skills and skill up-gradation and encourage entrepreneurship. In August 2015, the government unveiled the new National Policy for Skill Development and Entrepreneurship 2015 under its National Skill Development Mission, and rolled out on all-India basis the flagship scheme, Pradhan Mantri Kaushal Vikash Yojana (PMKVY). The Yojana is a demand-driven, reward-based skill training

scheme which will incentivise skill training, by providing financial rewards to candidates who successfully complete approved skill training programmes. Along with other initiatives of VET, it will, for the first time, provide skills to young people who lack formal certification, such as workers in India's vast unorganised sector through an initiative known as 'Recognition of Prior Learning' (RPL). These young people will have a chance to be assessed and certified for the skills that they already possess. This task will be taken up by the Ministry of Skill Development and Entrepreneurship created last year especially of women outside the formal system.

The study highlighted in the paper would be of help to the government in understanding the issues of skill formation in the informal sector as well as the nature of skill gaps of the technical persons.

References

AICTE (2014): Community College Scheme. All India Council for Technical Education, New Delhi. URL: http://www.aicte-india.org/downloads/community_schema.pdf.

Bairagya, Indrajit (2012): Employment in India's informal sector: size, patterns, growth and determinants. In: Journal of the Asia Pacific Economy. No. 17, Issue 4. Pp. 593-615.

Breman, J. (2013). At Work in the Informal Economy in India – A perspective from the Bottom Up. Oxford University Press. New Delhi, India.

Cedefop (2008): Modernising vocational education and training. Fourth report on vocational training research in Europe: background report. Volume 2. Cedefop Reference Series 70. Luxembourg: Office for Official Publications of the European Communities.

Chen, M.; Sebtad, M. and O'Connel, L. (1999): Counting the Invisible Workforce: The Case of Home Based Workers. In: World Bank. Vol. 27 (3), Confederation of Indian Industry (2014): National Skills Report. New Delhi, India.

Confederation of Indian Industry (CII) (2015): The India Skills Report 2015. URL: https://wheebox.com/logo/India%20Skills%20Report2015.pdf .

Gautam, R. S. and Navin, T. (2014): Challenges in Promotion of Vocational Education among Rural Youth: A Study of Bihar and Rajasthan States of India. In: Indian Journal of Vocational Education. Vol, 19, Issue 1, April-September 2013.

Grabowski, R. (2013): Female Autonomy in Rural North India: Impact of Economic, Social and Political Factors. In: Journal of Economic Development. Vol. 38 No.1.

Government of India (2011): Census of India. Ministry of Home Affairs. New Delhi, India.

Indian Council of Agriculture Research (ICAR) (2010): Krishi Vigyan Kendras (KVKs). URL: http://www.icar.org.in/en/krishi-vigyan-kendra.htm.

International Labour Organisation (ILO) (2002) Decent Work and the Informal Economy. International Labour Conference, Employment, Incomes and Equality: A Strategy for Increasing Productive Employment in Kenya, Geneva..

ILO (2010): Working Out of Poverty. Report of the Director General. ILO, Geneva.

ILO (2013): The Informal Economy and decent work: A policy resource guide supporting transitions to formality. International Labour Office, Employment Policy Department – Geneva ILO 2013.

King, K. (2011): Expanding Opportunities for the Marginalised through Skills Development. Some Modes Proposals for a Strengthened Focus on Technical and Vocation Education and Training

(TVET) in the Education for All (EFA) Agenda. Background paper for the GMR 2012 on Skills Development.

Krishna, V. V. (2005): Institutional support structures and modes of skills transmission. In: Singh, M. (2005): Meeting Basic Learning Needs in the Informal Sector – Integrating Education and Training for Decent Work, Empowerment and Citizenship. Springer, Dordrecht, The Netherlands.

Mehrotra, S. and Biggeri, M. (2002): Social protection in the informal economy: home based women workers and outsourced manufacturing in Asia. In: Working paper No. 97. UNICEF Research Unit, Florence.

Mehrotra, Santosh (2014): India's Skills Challenge, Reforming Vocational Education and Training to Harness the Demographic Dividend. Oxford University Press 2014, New Delhi.

Mitra, A. (2002): Informal Economy - Training and skill formation for decent work in the informal sector: case studies from South India. ILO Working Papers from International Labour Organisation (ILO): URL: http://www.ilo.org/public/libdoc/ilo/2002/102B09_273_engl.pdf.

MHRD (2015): Jan Shikshan Sansthan. URL: http://mhrd.gov.in/jss.

Mohapatra, K. K. (2012): Women Workers in Informal Sector in India: Understanding the Occupational Vulnerability. In: International Journal of Humanities and Social Science. Vol. 2 No. 21, pp. 197-207.

Ministry of Rural Development (MRD) (2011): Swarnjayanti Gram Swarozgar Yojana (SGSY). URL: http://rural.nic.in/sites/programmes-schemes-sgsy.asp.

Ministry of Micro Small and Medium Enterprises (MSME) (2008): Khadi and Village Industries Commission (KVIC). URL: http://msme.gov.in/Chapter%205-Eng_200708.pdf.

National Statistical Commission (NSC) (2012): Report of the Committee on Unorganised Sector Statistics. Government of India. URL: http://mospi.nic.in/Mospi_New/upload/nsc_report_un_sec_14mar12.pdf.

National Institute of Open Schooling (NIOS) (2015): General information about NIOS. URL: http://www.nos.org/#f3.

National Sample Survey Office (NSSO) (2010): NSS 66th Round (July 2009 - June 2010). Ministry of Statistics and Programme Implementation, Government of India. URL: http://mospi.nic.in/Mospi_New/site/inner.aspx?status=3&menu_id=31.

NSSO (2012): NSS 69th Round (July 2012 - December 2012. Ministry of Statistics and Programme Implementation, Government of India. URL: http://mospi.nic.in/Mospi_New/site/inner.aspx?status=3&menu_id=31.

Planning Commission (2008): Skill Development and Training. 11th Five Year Plan. Government of India. URL: http://planningcommission.nic.in/plans/planrel/fiveyr/11th/11_v1/11v1_ch5.pdf.

Singh, M. (2005): Meeting basic Needs in the Informal Sector: Integrating Education and Training for Decent Work, Empowerment and Citizenship. UNEVSCO-UNEVCO, Technical and Vocational Education and Training Series No. 2. Springer Publishing House. New York.

Singh, R. L. (2013): The NVQF and skills recognition. In: Singh, M. and Duvekot, R. (2013): Linking Recognition practices and National Qualifications Frameworks. UNESCO Institute of Lifelong Learning, Hamburg, Germany.

Singh, M. and Duvekot, R. (2013): Linking Recognition practices and National Qualifications Frameworks. UNESCO Institute of Lifelong Learning, Hamburg, Germany.

Sodhi J. S. and Ramanujam, M. S. (2010): Skilling Women For Work in Informal Sector. Shri Ram Centre for Industrial Relations, Human Resources, Economic and Social Development. New Delhi.

Sodhi, J.S. (2014): A study of skill gaps in the Informal Sector. In: IJIR (2014): A review of economic & social development, The Indian Journal of Industrial Relations, Shri Ram Center. Vol. 49 No. 3, p. 456-470.

UNESCO (2012): UNESCO Guidelines for the Recognition, Validation and Accreditation of the Outcomes of Non-formal and Informal Learning. UNESCO Institute for Lifelong Learning. URL: http://unesdoc.unesco.org/images/0023/002326/232656e.pdf.

UNESCO (2014): Education for All Global Monitoring Report. Geneva.

United Nations Development Programme (2013): Human Development Statistical Tables. URL: http://hdr.undp.org/en/data.

Werquin, P. (2010): Recognition of Non-Formal and Informal Learning: Country Practices. OECD. February 2010. URL: http://www.oecd.org/edu/skills-beyond-school/44600408.pdf.

World Bank (2015): Country and Lending Groups. URL: http://data.worldbank.org/about/country-and-lending-groups.

NVEQF: Skill Development under the National Skills Qualifications Framework in India: Imperatives and Challenges

Vinay Swarup Mehrotra

1   Introduction

The paper reviews the steps taken to integrate vocational education and general education through Vocationalisation of education and skill development initiatives under National Skill Qualification Framework (NSQF) and the challenges that India faces to develop policies and to ensure effective implementation of various schemes and programmes for preparing youth for the world of work and further education and training. It addresses the following challenges:

1. Improving the quality of vocational education and training.[1]
2. Providing greater access to a wide variety of skill development programmes attuned to the needs of individuals and employers.
3. Building seamless pathways for the world of work and further education and training.
4. Preparing a curriculum plan that integrates general education with vocational education in a manner that every student gets an opportunity to acquire knowledge, skills and ability for a smooth transition from school to work.

It is also argued in this paper that making qualifications better is necessary in order to make both academic and vocational education and training (VET) relevant and flexible to meet the needs of learner and employer (Mehrotra 2012). Nationally-defined vocational qualifications can give all at least equal to a national standard and meet the skill needs of the employers. Locally defined qualifications, on the

---

1 The main objective of vocational education and training is to prepare persons, especially the youth, for the world of work and make them employable for a broad range of occupations in various industries and other economic sectors. It aims at imparting training to persons in very specific fields through providing significant 'hands on' experience for acquiring necessary skill in the specific vocation or trade, which make them employable or help them to avail opportunities of self-employment.

other hand, may only give this security to those who have access to good educational institutions and receive a certificate issued by an accredited training provider. Vocational qualifications systems also have the potential to improve the link between education and work, to set up new pathways from education into employment and to reduce barriers to learning, for example by using new forms of pedagogy and assessment (Cedefop 2009). To gain additional currency, vocational qualifications must be endorsed by the national qualifications authorities, who in turn have consulted relevant stakeholders. The chapter comprises the following eight main sections:

> *Section 1* gives an overview of the status of general education, Vocationalisation of education and recognition of non-formal skills development initiatives in India;

> *Section 2* explains the policy context for integrating academic and vocational education qualifications under the NSQF;

> *Section 3* focuses on the revised Centrally Sponsored Scheme (CSS) of Vocationalisation of Secondary and Higher Secondary Education under the National Vocational Education Qualifications Framework (now subsumed in NSQF) and discusses its implementation aspects;

> *Section 4* deals with the role of private-sector led by National Skill Development Corporation (NSDC) and Sector Skill Council (SSC) in the development of the Qualification Packs (QP) and National Occupation Standards (NOS);

> *Section 5* deals with the development of learning outcome based curriculum packages;

> *Section 6* deals with the initiatives taken in India for developing a system of further education and training;

> *Section 7* deals with the initiatives taken to recognise prior learning; and

> *Section 8* focuses on ways forward and potential areas for improving the implementation of the NSQF in order to promote Vocationalisation of education and strengthening the link between vocational education and the labour market.

2   Status of General Education, Vocationalisation of Education and Non-formal Education and Training System in India

The general education system in India is broadly divided into school education (elementary, secondary, higher secondary level) and higher education (undergraduate and postgraduate level) (see chapter 1, 2, 3, 5 and 6).

2.1   School Education

Elementary education consists of eight years of compulsory education. India has made education a fundamental right of every child with the introduction of the Right to Education (RTE) Act 2009, which came into force on 1st April 2010. According to the Act, schooling is free and compulsory for all children from the age of 6 to 14. Also, *Sarva Shiksha Abhiyan* (SSA), which is Government of India's flagship programme for achievement of Universalisation of Elementary Education (UEE) in a time bound manner, has resulted an increase in enrolment of children of 6-14 years age group (see chapter 2).

According to the 9th Annual Status of Education Report (ASER), enrolment in the 6-14 age groups continues to be very high, with more than 96% of children enrolled in school (ASER Centre 2014). ASER surveyed 550 districts and close to 16,000 villages, 0.33 million households and 0.6 million children in the age group 3-16.

Each of secondary and higher secondary education consists of two years of education and with the launch of Rashtriya Madhyamik Shiksha Abhiyan (RMSA)[2] inMarch 2009, there has been an increase in the access and retention of students at secondary and higher secondary stages. The gross enrolment at secondary level is 63% and 36% at higher secondary level (MHRD 2011a) (see chapter 3). The RMSA seeks to achieve an enrolment rate of 75% within five years, universal access by 2017 and universal retention by 2020. At the higher secondary stage, the education system is divided into academic or vocational education stream or vocational subjects are offered as electives, along with the general education subjects. After completing Grade 12, students (age 17 to 18 years) can opt for apprenticeship training in a public or private industry or further education and training in polytechnics, colleges and universities (see chapter 5, 6 and 11). The minimum age at which most industries or organisations are willing to engage workers is 18 years.

---

2 RMSA was launched with the aim to provide access to good quality education accessible and affordable to all young persons in the age group 15-16 years. The scheme envisages enhancing the enrolment for Classes IX-X by providing a secondary school within a reasonable distance of every habitation, improving quality of education imparted at secondary level through making all secondary schools conform to prescribed norms, removal of gender, socio-economic and disability barriers, universal access to secondary level education by 2017, and universal retention by 2020. The CSS of ICT at schools, Girls' Hostel, Inclusive Education for Disabled at Secondary Stage and Vocational Education were subsumed under the RMSA from 2013-2014.

2.2   Higher Education

Education provided after completion of school education (12th Grade) is known as higher education, which comprises education in general, and vocational subjects, and professional and technical education. India's Gross Enrolment Ratio (GER) in higher education is 20.4% (provisional report of All India Survey of Higher Education for 2011-12; MHRD 2014) and the aim is to increase it to 21% by the end of the 12th Five Year Plan (2012-2017) and 30% by 2020 (MHRD 2011b) (see chapter 6).

To achieve the target, the Ministry of Human Resource Development (MHRD) has launched *Rashtriya Ucchatar Shiksha Abhiyan* (RUSA)[3] which will promote access and reforms in the higher education system. The increase in access and retention at the elementary, secondary and higher secondary stages of education throw up a huge challenge in terms of demands on the formal education and training systems, including Technical and Vocational Education and Training (TVET)[4].

2.3   Non-formal System of Education and Training

In addition to the formal general education system, a non-formal system of education and training and retraining for skilling, up-skilling, and re-skilling is in place. These skill development programmes aim to match the demand and supply of skills and labour by taking into account surveys that identify current and future skill shortages or gaps within the industry sector (see chapter 12). The workforce

---

3 RUSA is a CSS launched in 2013 with the aim to provide strategic funding to eligible state higher educational institutions. RUSA is implemented and monitored through an institutional structure comprising the National Mission Authority, Project Approval Board and the National Project Directorate at the centre and the State Higher Education Council and State Project Directorate at the state level. RUSA would create new universities through up-gradation of existing autonomous colleges and conversion of colleges in a cluster. It would create new model degree colleges, new professional colleges and provide infrastructural support to universities and colleges. In order to enhance skill development the existing central scheme of polytechnics has been subsumed within RUSA. A separate component to synergise vocational education with higher education has also been included in RUSA.
4 TVET in India operates at three levels: (i) Certificate level training in various vocational trades, offered by the higher secondary schools and Industrial Training Institutes (ITIs), (ii) Diploma level education and training in a variety of engineering/technological and other vocational disciplines; offered by polytechnics, colleges and universities, and (iii) Undergraduate and Post-graduate level in a number of colleges and universities. Technical education is regulated by the All India Council of Technical Education (AICTE) and the subjects that fall under this include engineering, management, pharmacy, architecture. VET is regulated by various departments under more than 17 ministries. MHRD and Ministry of Labour and Employment (MoL&E) are the main ministries regulating TVET programmes.

at the all-India level was about 459 million as on 1st January 2010 (NSS 66th round), which increased to 472.9 million, as on 1st January 2012 (NSS 68th round; July 2011-June 2012), indicating a growth of about 13.9 million of the workforce at the all-India level between 2010 to 2012 (NSSO 2013). To develop and upgrade skills matched better to labour demand and to meet the future skill needs, the NSDC has, for example, launched STAR scheme (Box 1). This could benefit an estimated 200 million Indians between the ages of 15 and 24 in the context of reaping India's demographic dividend.

Box 1: STAR Scheme for Indian Youth

Standard Training Assessment and Reward (STAR) Scheme was introduced on September 16, 2013 by the National Skill Development Corporation (NSDC) to motivate Indian youth to acquire vocational skills matching industry needs. The objective of the scheme is to encourage skill development for youth by providing monetary rewards for successful completion of approved training programmes. The scheme has been implemented on pan-India basis through Public-Private and Public-Public partnerships and is expected to benefit financially a million people who wish to acquire new skills or upgrade their skills to higher level for better opportunities. Each assessed and certified trainee gets RS. 10,000 to cover training cost. Respective Sector Skills Councils (SSCs) are running this programme under the umbrella of NSDC. The skills are aligned with National Occupation Standards (NOS) that have been developed by Sector Skills Councils. The scheme initially covers only a limited number of high-market-demand job roles in specified economic sectors from Level 1 to 4 in the NSQF. In order to enable the financially disadvantaged to use the award money to fund a part of the training cost, the training providers will allow candidates to pay part of the course fee (minimum 25% of the prescribed fee) and the balance will be paid to the training provider from the monetary award whenever the candidate is eligible for its receipt. However this amount shall not exceed the total amount that the candidate is eligible for. At the time of enrolment for the course, the trainee will have to pay some part of the course fee (minimum 25% of the prescribed fee), so that the candidate has a sustained interest in the completion of the course.

      A total of 19,54,300 persons have received job-oriented skills training through NSDC skilling partners since 2010, of which 60% have been placed in different sectors. During 2013-14, NSDC partners trained 10,05,074 people across a wide array of sectors ranging from healthcare, manufacturing, electronics and hardware, tourism, hospitality and travel to banking, financial services, retail, information technology, and textiles in 366 districts. As on 31 March 2014, 3,44,545 trainees have completed their training in 206 courses, with 559 partners in 6402 centres across the country (Economic Survey, July 9, 2014).

---

3 The Policy Context for the Integration of Academic and Vocational Education under the National Skill Qualification Framework

Vocationalisation of education, which is designed to prepare students for the world of work better than the 'academic' education (Maclean and Pavlova 2013) could provide learners the opportunity to develop competencies required to find a job.

Pavlova (2005) identified three components of Vocationalisation: learning for work (work-related knowledge, practices), learning about work (settings and conditions), and understanding of the nature of work (socio-cultural, economic and political forces that influence work).

In India Vocationalisation of education begins from Grade 1, with skill based activities introduced through the Work Experience or Socially Useful Productive Work (SUPW)[5] programme up to Grade 8. Vocationalisation of education was introduced in India to make provisions for the orientation and exploration of productive skills alongside general academic education throughout the school system of ten years, and to offer Vocational Education Programme (VEP) of two years as an alternative to general academic education at the higher secondary stage. The purpose of Vocationalisation of education is to improve the relevance of education to the world of work and make students more employable. The Programme of Action (1986) of National Policy on Education (1986) emphasised that Vocationalisation of education programme must ensure that at the secondary stage, students are prepared to choose a career. It stressed the development of vocational interests and aptitudes to allow the self-exploration of vocational preferences and to enhance productivity and participation in work. At secondary education level, there is a provision for pre-vocational education[6], but very few states, like Maharashtra, have implemented the pre-vocational education programme. Successful completion of pre-vocational education does not lead to a vocational or technical qualification that is directly relevant to the labour market. According to OECD (2010), vocational and pre-vocational programmes are further divided into two categories (school-based and combined school and work-based programmes) on the basis of the amount of training provided in school, as opposed to the workplace. Programmes are classified as school-based, if at least 75% of the curriculum is presented in the school environment, a proportion which may include distance education. In combined school and work-based programmes less than 75% of the curriculum is presented in the school environment or through distance education.

The Indian Government and all other stakeholders are putting in place policies and legislation to increase the proportion of students undertaking vocational education at the secondary and higher secondary levels and improve the link between vocational education and employment. In 2006, the Government of India

---

5 The aim of SUPW is to provide children with opportunities of participating in social and economic activities inside and outside the classroom, enabling them to understand scientific principles and processes involved in different types of work and the setting in which they are found in the physical and social environment.
6 Pre-vocational programme provided at the secondary stage facilitate the choice of the vocational course at the higher secondary stage.

declared that a Vocational Education Mission will be set up to overcome skill deficit and to achieve a target of preparing 500 million skilled personnel by the year 2022. However, a recent estimate of the number of people to be skilled reveals that the number of workers entering the workforce each year in India would be 2 million and the projected labour force at 2022 would be around 580 million. Of this, nearly 291 million or around half of the workforce will need to be skilled by 2022 (Mehrotra et al. 2013). The 13-30 age group in the Indian population is growing by 28 million people each year, but there are only about 2.5 million (5%) vocational training places available in the country (MHRD 2011c) which is comparatively too low as compared to other countries. For example in 2010 about half of upper secondary students in the European Union (EU) were enrolled in the vocational stream of education (49.9%). The proportion among male students (55.4%) was significantly higher than among female students (44.2%). Enrolment of female students in the vocational stream was more than 50% in 10 EU Member States. The highest shares (more than 60%) were in Belgium, the Czech Republic, the Netherlands, Austria, Slovakia and Finland. The lowest shares (less than 30%) were reported in Greece, Estonia, Hungary, Latvia, Cyprus and Lithuania. Austria had the highest share of upper secondary students undertaking vocational programmes at 76.8%. Belgium, the Czech Republic and Slovakia recorded more than 70% of upper secondary students in the VET stream. Cyprus (13.2%), Hungary (25.8%) and Lithuania (25.8%) had the lowest shares (all below 30% in 2010) (Cedefop 2013).

In 2007, the MHRD initiated the process of revision of the CSS of Vocationalisation of Secondary Education which was introduced in 1988 to provide funds to the States and to streamline the implementation of the scheme. In 2008, a 'Coordinated Action on Skill Development' with a three-tier institutional structure consisting of the Prime Minister's National Council on Skill Development (NCSD), the National Skill Development Coordination Board (NSDCB) and the NSDC was created to develop an institutional base for skill development at the national level.

3.1   National Policy on Skill Development (NPSD)

In 2009, the Indian government adopted a NPSD, which aims to guide the skills development strategies and initiatives involving all stakeholders including government, industry, employers, trade unions, industry associations, non-government organisations and civil society organisations. The NPSD aims to achieve the target of skilling 500 million people by 2022 through the use of instruments, such as NVQF. The NPSD *inter alia* states

> *"National Vocational Qualification Framework will be created with an open flexible system, which will permit individuals to accumulate their knowledge and skills and convert them through testing and certification into higher diplomas and degrees. NVQF will provide quality-assured learning pathways having standards, comparable with any international qualification framework. NVQF will support lifelong learning, continuous upgradation of skills and knowledge." (MoL&E, 2009)*

Most countries have adopted a National Qualification Framework (NQF) to link different qualifications and to provide a seamless pathway that connects different sectors of education and training. Advanced countries are making upper secondary vocational education more general so that vocational students receive more academic content to broaden their occupational focus, while general education students are given more opportunity to apply academic principles to practical problems (Maclean and Pavlova 2013). Some countries are still choosing to differentiate young people into general and vocational pathways during the later years of compulsory schooling and others are looking at vocational or pre-vocational education as a potential mechanism to reengage young people bored and disaffected by general schooling towards the end of the compulsory phase (Cedefop 2009). Work-based learning, which provides a bridge to the labour market, can aid transition from education to work and contribute to the development of highly relevant skills for the labour market (Cedefop 2013). Work based education and training can develop the knowledge and skills for identifying, selecting, observing, manipulating and participating in work practices, thereby enhancing productive efficiency (Mehrotra 2014a). In Denmark, nearly all upper secondary VET was undertaken in combined work- and school-based programmes (97.4%). The share was also relatively high in Germany (88.4%). Combined work- and school-based programmes accounted for more than 50% of students in upper secondary VET in Hungary (59.6%) and between 30% and 45% in Czech Republic, the Netherlands, Austria and Slovakia. Finland has incorporated on-the-job periods in upper secondary VET qualifications so that students can spend a minimum of 20 weeks in firms, with the aim of improving the transition from school-to-work (Lasonen and Gorden 2008). Analysis by UIS-UNEVOC (2006) demonstrates a trend towards the creation of broad vocational tracks due to changing technologies and work organisation that require workers with multiple skills and flexibility to adapt to a changing labour market. Experience from Europe shows that narrow vocational tracks can become straightjackets for career development. This is aggravated if such tracking begins at an early age, with a premature selection of students into different pathways. India has also experienced this phenomenon, with the introduction of a distinct stream of vocational education at the higher secondary stage, which was terminal in nature and thus affected the vertical mobility of the vocational students. Vertical mobility existed to some extent for certain engineering

and commerce based vocational courses with elements of general education subjects. The vocational stream originally was meant to address the needs of those who would enter the workforce earlier than those who would enter the professions via the traditional academic streams (NCERT 2005). Envisaging a radical and systemic change in the curriculum, the National Curriculum Framework (NCF) 2005 *inter alia* states,

> *"The current two streams, academic and vocational, being pursued as per National Policy on Education (NPE-1986), may require a fresh look in the present scenario. Students may be given the option of choosing the subjects of their interest freely, though it may not be feasible to offer all the different subjects in every school. The curriculum load should be rationalized to avoid the steep gradient between secondary and higher secondary syllabi."* *(NCERT, 2005: 49)*

The higher secondary stage is important as it offers a choice of subjects to students. For some students, this stage may be the end of their formal education, leading to the world of work and employment; for others, the foundation for higher education. They may choose either specialised academic courses or job-oriented vocational courses. The foundation at this stage should equip them with basic knowledge and the necessary skills to make a meaningful contribution in the field they choose. A range of courses from the social sciences and commerce may be offered, and students may exercise their choice. Subjects need not be grouped into separate 'streams', and students should have the freedom to opt for subjects or courses according to their need, interest and aptitude (NCERT 2005: 53).

There has to be seamless facilitation from secondary to higher education if a student chooses to study vocational courses. From integrating vocational education with general education in schools and colleges to continuously updating the curriculums to incorporate the latest trends will help students gain relevance in their training process (FICCI-KPMG 2014).

3.2   Architecture of National Vocational Education Qualification Framework (NVEQF)

Organisational unification of general and vocational education involves bringing academic and vocational study under a single NQF and creating suitable arrangements for funding, administration, regulation and quality assurance. After several round of consultations with various stakeholders, a document containing the conceptual framework for was developed which provided the outline for the major initiatives and actions to be taken for the implementation of NVEQF (IAMR 2012). In 2012, the MHRD, Government of India launched the NVEQF, now sub-

sumed in the NSQF[7], to provide a common reference framework for linking various vocational qualifications and setting common principles and guidelines for a nationally recognised qualification system and standards. The architecture of the NVEQF is given below.

Level	Certificate	Case 1 Equivalence	Case 2 Equivalence	Certifying Body
10	NCC 8	Degree	Doctorate	University and SSC
9	NCC 7	PG Diploma	Master Degree	University and SSC
8	NCC 6			University and SSC
7	NCC 5	Advanced Diploma	Bachelor Degree	Board of Technical Education
6	NCC 4			University and SSC
4	NCC 2		Class XII	Board of Technical Education and SSC
3	NCC 1		Class XI	School Board and SSC
2	NCWP 2	Grade X	Grade X	School Board and SSC
1	NCWP 1	Grade IX	Grade IX	School Board and SSC
RPL	RPL 2	Grade VIII	Grade VIII	NIOS / State Open Schools and SSC
	RPL 1	Grade V	Grade V	NIOS / State Open Schools and SSC

RPL: Recognition of Prior Knowledge; NCWP: National Certificate of Work Preparation; NCC: National Competency Certificate; SSC: Sector Skill Council; NIOS: National Institute of Open Schooling.

Table 1: NSQF. Source: MHRD (2012)

The NSQF organises qualifications according to a series of levels of knowledge, skills and aptitude. These levels are defined in terms of learning outcomes[8], which the learner must possess regardless of whether they were acquired through formal, non-formal or informal learning. The key elements of the NSQF provide (i) national principles for recognising skill proficiency and competencies at different

---

7 The NVEQF was subsumed in NSQF after the notification of NSQF by the Ministry of Finance, Government of India on 27th December 2013. The NSQF has been developed by the Ministry of Labour and Employment (MoL&E) and the MHRD with the help of the India-EU Skill Development Project.
8 The European NQFs are mainly connected through their emphasis on learning outcomes. The NQFs of a number of countries, like Austria, Belgium (french speaking community), Croatia, France, Hungary, Iceland, Norway, Poland, Slovenia, Sweden and Turkey have supported implementation of learning outcomes. Outcome-referenced framework aims at incremental change in qualifications system and is driven by education and training system, whereas outcome-led framework is labour market driven and treats learning outcomes as an instrument for strictly linking education and training with occupational standards.

levels, leading to international equivalency; (ii) multiple entry and exit between vocational education, skill training, general education, technical education and job markets; (iii) progression pathways defined within skill qualifications framework, (iv) opportunities to promote lifelong learning and skill development, (v) partnership with industry/employers; (vi) a transparent, accountable and credible mechanism for skill development across various sectors; and (vii) increased potential for recognition of prior learning.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are (i) Process, (ii) Professional knowledge, (iii) Professional skills, (iv) Core skills and (v) Responsibility. The descriptors give broad, general, but meaningful indicators of the learning outcomes at each level. The descriptors can be used in a number of ways, including the following:

a) To allocate levels to learning programmes and qualifications
b) In validation and moderation of various qualifications and programmes
c) As a basis for communication with learners and other users of qualifications
d) As a guide for mapping progression routes within and across education and training sector
e) By programme designers, when making entry requirements and recommendations for programmes (Ministry of Finance 2013).

3.3   Qualification Types

The NSQF development has revealed that using only the level structure in the NSQF may not be able to provide effective classification of qualifications. Thus it was decided to identify and utilise some qualification types, in addition to the structure of levels. Qualification types will help to distinguish among qualifications which are at the same level but differ significantly in terms of their functions, learning outcomes, sizes and/or orientation. Most frameworks in European countries have been designed to be comprehensive, covering all levels and types of qualifications. The French NQF, for example, covers three main types of qualifications: (a) vocational/ professional certificates and diplomas awarded by French ministries in cooperation with social partners through Consultative Vocational Committees (CPC); (b) vocational qualifications certificates produced by sectors under the responsibility of social partners but where no CPC is in place; and (c) certificates delivered by Chambers, public or private institutions in their own name are registered on demand after the expertise, advice and fulfilment of strict quality criteria for inclusion in the NQF (Cedefop 2012b).

3.4   Expected Benefits of the National Skill Qualification Framework

The NSQF is a nationally integrated education and competency based skills qual-
ifications framework that will provide for multiple pathways, horizontal as well as
vertical, both within vocational education and vocational training and among vo-
cational education, vocational training, general education and technical education,
thus linking one level of learning to another higher level. Individuals who obtain
nationally recognised qualifications can be confident that the skills and knowledge
they attain are recognised and valued across the country (maybe also internation-
ally) as the standards set out the education, training and assessment requirements
for an organisation issuing qualifications which comply with the requirements of
an accredited course. Under the NSQF, skills and employability of the youth will
be enhanced through industry and demand driven vocational courses. The NSQF
will improve the progression pathways between formal TVET programmes in
schools and Industrial Training Institutes (ITIs), Polytechnics, Colleges of Engi-
neering and Higher Education Institutions more generally, leading to better em-
ployability. It will open up several entry and exit points between TVET and gen-
eral education and will facilitate movement between these sectors. The NSQF em-
phasizes industry participation, with a specific focus on creating opportunities for
students who are unable to enter colleges and universities. The implications of this
for vocational qualifications are that besides improving the relevance for the la-
bour market and enabling progression, qualifications can be made broad enough
to accommodate the core skills that will allow learners to switch careers and pur-
sue personal interests. Standardised processes for qualification development, cur-
riculum development, training of teachers and trainers, assessment and quality as-
surance are being planned and implemented under the NSQF.

4 Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education under the National Vocational Education Qualification Framework (NSQF)

A CSS of Vocationalisation of Secondary Education was introduced as a separate vocational stream at the +2 stage in 1988 (MHRD 1988) and revised in 1992-1993. According to an All India Evaluation Study carried out in 1995-1996, despite over 10,000 schools offering vocational courses and catering to over 1 million students, only about 4.8% of all students were enrolled in the vocational stream, against a target of covering 25% of such students. Recognising the high demand for skills and the need to make VET relevant to the diversified skill needs of the students and employers, the MHRD launched the revised scheme in 2012 under the NVEQF. The objectives of the scheme are to (i) enhance the employability of youth through competency based modular vocational courses; (ii) to maintain the competitiveness through provisions of multi-entry and multi-exit learning opportunities and vertical mobility; (iii) to fill the gap between the educated and the employable; and (iv) to decrease pressure on academic higher education. The main aim of the scheme is to provide diverse opportunities to the students to acquire skills through occupation based vocational subjects offered along with the general education subjects. Vocationalisation of education in India is taking a new form with the implementation of revised CSS of Vocationalisation of Secondary and Higher Secondary Education, which aims to increase students' employability through focus on generic or soft skills, especially at the lower levels of qualifications.

4.1 Implementation of National Vocational Education Qualification Framework (National Skill Qualification Framework) Pilot Project in Haryana State

Haryana is the first State to have implemented the CSS of Vocationalisation of Secondary and Higher Secondary Education under the NVEQF pilot project, launched by the MHRD on 3rd September 2012. To begin with, the Haryana State Government introduced four vocational subjects in Retail, Security, Automotive and Information Technology/ IT-enabled Service sectors in Class IX (NVEQF Level 1). 40 schools in 8 districts of Haryana introduced the vocational subjects under the CSS of Vocationalisation of Secondary and Higher Secondary Education. In 2013-2014, the State Government introduced another 3 vocational subjects in Healthcare, Physical Education and Sports, and Beauty and Wellness sectors. Vocational pass-outs from Government Schools are being recruited by Indian industry multi-national companies in Information Technology-IT Enabled Services,

Automotive, Security and Retail sectors. The State/ Central Boards/ Councils of Secondary Education Board and SSC conduct assessment. Skill based assessment is conducted by the Sector Skill Councils under a continuous and comprehensive evaluation system. Written, oral and skill based tests, projects, and student portfolios are being used to evaluate student's progress. The success of the pilot can be gauged by the interests that the industries are showing to do school campus placements drive to recruit vocational students. After the implementation of the NSQF pilot project at Haryana, other states have either introduced or are in the process of introducing the vocational subjects under the NSQF.

5   Public Private Partnerships under National Skill Qualification Framework

In India, significant differences between public and private provision of VET in terms of enrolment rate, student-teacher ratio, duration of courses, standard of training, training fee, qualification and salary of teachers/trainers exists among the states and it has been a major concern for the Government. However, there has been a change over the years, with industry and industry associations playing a greater role at the national level in bringing about necessary awareness on the importance of skill development and implementing the various strategies for skill development under NSQF. Countries, like Germany[9], have very strong linkages with the industry for providing VET. Students are trained in a company for three to five days a week. The company is responsible for ensuring that students get the standard quantity and quality of training set down in the training descriptions for each trade. Participation in the 'dual system' of VET is voluntary, even sometimes firms that are qualified to offer apprenticeships do not do so, and employers are under no obligation to retain trainees upon completion of the dual programme. Social partnership is an explicit part of the system, where sector joint bodies as well as sector agreements are especially important, and at the local level, unions have influence through the work councils (Winterton 2000). Although the 'dual system' is generally considered to be exemplary and has been adopted by a number of countries like Austria, Switzerland, Denmark, the Netherland, and France, but over the years it is losing its popularity due to various reasons, which include (i)

9 Germany has three types of secondary schools viz., (i) the Gymnasium, offering a rigorous academic programme, (ii) the Hauptschule, leading to 'part-time' enrolment in upper secondary vocational schools (Berufsschule) combined with apprenticeship until the age of 18, and (iii) Realschule, leading to higher vocational schools. The dual system (duales Ausbildungssystem) of VET, which combines apprenticeship in a company and vocational education at a vocational school, is a successful model because every institution has close linkage with the concerned industry under a legal framework.

companies are highly specialised and are unable to train apprentices in all the areas of the courses, (ii) companies have to follow a large number of regulations for training apprentices, (iii) providing training to the apprentices is very expensive, (iv) many school graduates possess low level of education and are, therefore, not able to cope up with the requirements of the training at workplace, and (v) lack of lifelong learning opportunities for the students (Maclean and Wilson 2009).

In India, the Public-Private Partnership (PPP) model, led by NSDC, which was established in 2009, is now driving the skill development activities in policy planning, infrastructure development, development of NOSs, training, assessment and certification. NSDC has a mandate to skill 150 million people by 2022 in 20 high growth sectors identified by the Government of India. It has 154 training partners and 1,408 training centres. The NSDC constitutes SSCs, which define the NOS for the respective sector. SSCs are autonomous bodies, incorporated either as Societies under the Societies Registration Act, 1890 or a Section 25 company under the Companies Act, 1956 with the objective of bringing about necessary connectivity between the education and training providers and industry for development of NOSs, curricula and courseware and conducting training and assessment of students/trainees. A total of 31 SSCs have been approved by the NSDC (table 2). SSCs are developing QPs for different job roles, which contain NOSs or competency standards.

Sector	Name of Sector Skill Council
Agriculture	Agriculture Sector Skill Council
Apparels	Apparel, Made-ups and Home Furnishing Sector Skill Council
Automotive	Automotive Skills Development Council
Aviation and Aerospace	Aviation and Aerospace Sector Skill Council
Beauty and Wellness	Beauty and Wellness Sector Skill Council
Banking, Financial Services and Insurance	Banking, Financial Services and Insurance Sector Skill Council of India
Capital Goods	Capital Goods Sector Skill Council
Construction	Construction Sector Skill Council
Construction Equipment	Earthmoving and Infrastructure Building Sector Skill Council
Electronics and Hardware	Electronic Sector Skill Council of India
Food Processing	Food Industry Capacity and Skill Initiative
Gems and Jewellery	Gems and Jewellery Skill Council of India
Handicrafts	Handicrafts Sector Skill Council
Healthcare	Healthcare Sector Skill Council
Iron and Steel	Iron and Steel Sector Skill Council
Information Technology-IT enabled Services	IT-ITeS Sector Skill Council
Leather	Leather Sector Skill Council
Life Sciences	Life Sciences Sector Skill Council
Logistics	Logistics Sector Skill Council
Media	Media and Entertainment Skills Council
Mining	Skill Council for Mining Sector
Oil and Gas	Hydro Carbon Sector Skill Council
Plumbing	Plumbing Skill Council of India
Power	Power Sector Skill Council
Retail	Retailers Association's Skill Council of India
Rubber	Rubber Skill Development Council
Security	Security Knowledge and Skill Development Council
Sports	Sports, Physical Education, Fitness and Leisure Sector Skill Council
Telecommunication	Telecom Sector Skill Council of India
Textiles and Handlooms	Textiles and Handloom Sector Skill Council
Tourism and Hospitality	Tourism and Hospitality Sector Skill Council

Table 2: Sector Skill Council of India. Source: NSDC (2014)

The process of development of QPs and NOSs involves research and analysis, mapping to the level descriptors of the NSQF, and development of '*performance criteria*'. More than 700 QPs, with around 2,000 NOSs have been developed and the list is expanding. A Qualifications Registration Committee (QRC) finalises the QPs/NOSs by ascertaining whether the correct process, format and nomenclature have been adopted by the SSCs. Many countries, such as Australia, Canada, Chile,

Denmark, Japan, Malaysia, the Netherlands, New Zealand, Philippines, United Kingdom, and the United States have taken specific steps to develop occupational and training standards, and some are beginning to develop cross-national approaches and benchmark national standards to international requirements. The response and the extent of involvement of industry and employers in India are yet to be studied. In UK, for example, few employers were interested either in enabling their employees to gain vocational qualifications or in using these qualifications for recruitment. As a result, the lead bodies were far from representatives and the NVQF became employment-led rather than employer-led and over dependent on consultants employed by the lead bodies to develop occupational standards (Young 2009).

A National Skill Development Agency (NSDA) was set up in June 2013 with the responsibility of coordinating and harmonizing skill development programmes under the NSQF. NSDA plans to achieve this through the National Skills Qualifications Committee (NSQC).

6   Learning Outcome Based Curriculum Packages

A paradigm shift from input based education to learning outcome-oriented education is taking place. One of the initiatives under the NSQF is to develop outcome-oriented curricula and courseware with the involvement of professionals from industry and curriculum development experts. Learning outcomes are related to the level of the learning; indicate the intended gain in knowledge and skills that a student will achieve and should be capable of being assessed.

Modular curricula, student workbooks, teachers' handbooks and e-learning materials for school education under the NSQF are being developed by the Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), a constituent unit of National Council of Educational Research and Training (NCERT) which is under MHRD, Government of India. The competency based curriculum packages consisting of syllabus, student manual and e-learning materials are being developed for specific job role identified by the SSCs. Countries like Slovenia and Romania are developing occupational standards for all sectors based on job profiles created by sectoral committees. The content is aligned to the NOSs so as to address the specific skill needs of the job role. The information from occupational standards within a sector are being used to develop outcome-referenced curricula for NSQF Level 1 and 2 for providing education and training in generic and basic technical or vocational skills. At NSQF Level 3 and 4, curricula aims to develop specific vocational or technical skill sets needed for a job role. Countries which have introduced outcome-oriented curricula include Belgium,

Finland, France, Hungary, Ireland, Lithuania, the Netherlands, Norway, Poland, Romania, Slovenia, Sweden and the United Kingdom, Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Germany, Greece, Iceland, Latvia, Liechtenstein, Malta, Portugal, Slovakia, Spain and Turkey. Cedefop (2012a) research has shown how learning-outcomes approaches to curriculum design and implementation make curricula in initial VET more inclusive and more motivating for learners (e.g. in Lithuania, Malta, the Netherlands and Finland).

7   Further Education and Training under National Skill Qualification Framework

Currently provisions for vocational progression to higher education in India are inadequate. Expressing concern over the limited provisions for higher vocational and applied learning, the Report of the Committee to Advise on Renovation and Rejuvenation of Higher Education *inter alia* states

> *"(…) the vocational education sector is at present outside the purview of Universities and Colleges. The knowledge and skills covered by this sector have no linkages with institutions of higher education and research. Students who go for vocational and technical education after completing higher secondary education are deprived of any possibility of pursuing higher education after completing their vocational or technical training. Alienation of this sector can be overcome by bringing it under the purview of universities and by providing necessary accreditation to the courses available in polytechnics, industrial training institutions, and so on. In the context of the rural economy and livelihoods, certain institutions and programmes have attempted to provide opportunities for further education after the higher secondary stage. They also need to be brought under the purview of the university system. Such inclusion will create the possibility of addressing long neglected issues of social justice and inequity arising out of the hierarchical social order and entrenched rural-urban disparities. The reason why vocational education has remained under developed and continues to be perceived as a last option is because it is largely the poor, who either cannot afford academic education or who pass out of poorly equipped and uninspiring schools with low marks. This kind of stigmatization of vocational education, as a last resort and essentially for the poorer sections of society, needs to be overcome for speedy development of the skills necessary in the present phase of India's economic development. The setting up of a Skill Development Council at the Central level is a positive step in this direction. Further growth will greatly depend on the guidance and leadership that universities will be able to provide for institutions of vocational and technical education, once they are brought into the domain an all-encompassing system of higher education. Additionally the barriers to entry into universities for students going through vocational training should be lowered to enable them to upgrade their knowledge base at any stage of their careers." (MHRD 2009)*

A major responsibility of the education and training system is to help individuals learn throughout their life. Individuals are interested to continue their studies through flexible pathways and acquire qualifications that should not constrain

them in pursuing their personal or occupational interests. Countries, such as France, Hungary, Netherlands, Spain, Greece, Turkey, Poland, Czech Republic have introduced modular system to make VET flexible and credit based. Provisions have been made for full-time and part-time vocational studies for progression of vocational students from one level to another through a wide range of higher learning programmes and modes of study which could be undertaken alongside or as part of the work. Factors that need to be considered while making arrangements for lifelong learning include aspirations and vocational interests of learners, cognitive ability, family's socio-economic support, social and religious prohibitions, gender inhibitions, and policy and legal issues. Systems need to be developed to provide clearer and transparent links to the programmes, crediting of qualifications, recognition of credits gained through programmes, and recognition of learner's achievements based on the identified sets of learning outcomes of module, unit or qualification. For VET to be an attractive learning option, young VET graduates should experience smooth transitions not only to the labour market but also if they wish to further learning opportunities. This is particularly important in countries where VET suffers from poor parity of esteem with general education (Cedefop 2013).

The NSQF has made provision for a system that would permit vocational pass-outs from schools, ITIs and Polytechnics to gain entry into higher education programmes in vocational/technical/general education courses, including degree level courses, such as Bachelor of Vocational Education (B. Voc.), notified by the University Grants Commission (UGC). 127 colleges and universities are introducing a three-year employability linked B. Voc. degree programme from 2014-2015. At the higher education level, programmes are being redesigned to incorporate a more vocationally-oriented content for providing opportunities for internships and work-based learning (see chapter 6).

After completing NSQF Level 4, students have the option to enter the degree courses of general education, such as Bachelor of Commerce (B. Com.), Bachelor of Science (B.Sc.), Bachelor of Arts (B.A.), etc. or they can pursue B. Voc. In order to provide a link between the 12th Grade certificate course and University degrees, the UGC has also approved 98 Community Colleges, which will offer skill-based courses from 2014-2015. The community colleges will be an extension of existing colleges in rural and tribal areas and will function in collaboration with the industry. They will offer six months, one year and two-year of certificate, diploma and advanced diploma courses, respectively. These courses will be taught by regular and guest faculty from the industry. The curricula will be prepared by universities and the UGC will monitor the infrastructure of these colleges. Courses in automotive engineering, retail management, food processing, banking, insurance, horticulture, healthcare, cast iron foundry, hospitality and

tourism, information technology, etc. are being offered through the Community Colleges.

In the United States, Community Colleges offer technical training and skill-oriented programmes in a wide variety of disciplines. They are also called technical colleges or junior colleges and award an Associate's degree on completion of two years of undergraduate study. They also offer certificate programmes for shorter durations. Students can join a Community College on completion of 12th Grade or at any time in their careers for re-training or re-skilling in a completely new area. On obtaining an Associate degree, a student is ready for employment and does not require a four-year undergraduate degree. Alternately, students can transfer credits to a university or college to undertake two additional years of study in order to obtain a Bachelor's degree. Most Community Colleges have agreements with universities and colleges in the immediate vicinity or within the state, which makes the transfer of credits easier. Admission criteria in Community Colleges are generally less stringent when compared to the four-year universities and colleges.

In United Kingdom, foundation degrees address skill needs at higher technician and associate professional levels; they are vocational higher education providing specialist knowledge and employability skills needed by employers. They are also a major progression route for young people who have followed an apprenticeship or other work based routes (Lasonen and Gorden 2008). In countries like France, Cyprus, Czech Republic, Iceland, the Netherlands, United Kingdom, progression from VET courses into higher education is well established (ibid). In 2009, 30.7% of EU VET graduates (age 18 to 24) were participating in further education and training, which is considerably lower than the EU figure among general education graduates (74.8%). The highest participation in further education and training among IVET graduates was found in Denmark (58.2%) and Slovenia (56.9%). The lowest shares were found in Estonia, Ireland, Greece and Cyprus (where VET also registers relatively low enrolment rates) as well as in Germany (where instead VET is associated with high employment rates). The rate in Turkey (35.6%) is higher than the EU average while the rate in Switzerland (25.3%) is less than the EU average.

8   Recognition of Prior Learning

The processes of prior learning are complementary to every qualifications system that aims to promote an approach to lifelong learning. Within the scope of lifelong learning, learning is considered as a process, which continues, in the formal, non-formal and informal learning environments at every level of education system, including the higher education system. The processes of Recognition of Prior

Learning (RPL) ensure that the knowledge, skills and competences acquired in non-formal and informal learning are described and recognised. In India, RPL is expected to provide the following possibilities:

- Access to assessment and evaluation of competencies
- Access to education and training programmes
- Credit accumulation and transfer
- Exemptions to a part of study programme
- Certification of units
- Recognition of qualifications

The following groups and individuals could be the beneficiaries of RPL:

- Students who dropout at different stages of education and they do not have the necessary general education and skills for gaining employment in the industry. As per 66th NSSO round (2009-2010), the general education level of over 50% of India's labour force in the age group of 15-59 remains extremely low. Of the total labour force of 431 million on basis, about 29% are not even literate and another about 24% were having education up to primary level. Of the balance, about 29% had education level up to secondary which included 17.6% with middle level education. Only about 17% have higher levels of education (including higher secondary, diploma/certificate, graduates and higher than graduation) (Planning Commission 2012).
- People who are working in the unorganised sector for decades but their competencies have not been recognised as they have not undergone formal VET. The NSSO 66th round estimates that in the working age population (i.e. age group of 15-59), only 3% have received formal vocational training and 5% non-formal training. Of this 5%, 2% received training from hereditary profession (informal training), 1% through self-learning and the rest 2% from on-job training (NSSO 2013). It is estimated that by 2022, India will have the maximum number of working age (between 15 to 59) population in the world who could contribute to the economic growth of nation (Census 2011; FICCI-KPMG 2014).
- Individuals who have undergone VET, but their certificates hold no value or they have very limited options for personal or career development. According to the NSSO, VET has been helpful to about 44% of the trainees in securing salaried or wage employment and for nearly 16% of trainees,

the VET was helpful in self-employment. However, the training was reported to be not so useful to about 29% of the participants (NSSO 2013) (see chapter 12).

The Skill Development Initiative (SDI) scheme of Ministry of Labour and Employment (MoL&E) attempts to recognise and certify the skills of skilled workers. For example, the Ministry of Tourism runs the Skill Testing and Certification programme wherein candidates can get their skills assessed and get the certificate. Skills recognition and certification initiatives in the informal economy through RPL processes will provide an important pathway for the 90% of Indians who work in the unorganised sector (NCEUS 2009).

India's NSQF supports the processes regarding the recognition of prior learning. The concerned processes help clarify the meaning of the qualifications and make visible the learning outcomes that are necessary in order to achieve the qualifications. Given the low levels of general education in the population, the NSQF has organised RPL into learning 1 and RPL 2, leading into Levels 1 to 10. The NSQC will develop the principles and guidelines for RPL. Following the publication of the principles of RPL designated institutions and bodes will be responsible for publishing the procedures for implementing these principles.

The major challenges in the implementation of RPL in India include the following: (i) developing an understanding among the people working in the unorganised sector about the benefits of RPL; (ii) developing a mechanism of parity between the learning achievements gained through the validation of prior learning with the achievements gained through a variety of educational routes; (iii) preparing people to be responsible for their own learning and opting for courses under the NSQF; (iv) producing a common RPL referencing framework across knowledge and skills, especially for those who lack literacy and numeracy skills; and (v) developing a management structure to coordinate and regulate quality assured assessment and certification mechanism. A Skill Assessment Matrix for Vocational Advancement of Youth (SAMAVAY) which allows for vertical and lateral mobility within the vocational education system and between the current education systems was launched by the MHRD on 11th November 2014. The framework defines the rules for credit allotment under the NSQF. This will facilitate multiple entry and exit pathways with the credits earned and recognised for exemptions.

The National Institute for Open Schooling (NIOS), which offers distance learning courses for out-of-school youth and adults, could play a major role in offering bridge or foundation courses for seamless progression of learners from one level to another. As a step forward, a framework for RPL has been prepared

by the NIOS (NIOS 2013). The NIOS will be instrumental in conducting assessment through RPL at both the lowest levels and at community colleges and polytechnics, the latter offering qualifications such as associate diplomas (MHRD 2012). The NIOS is developing the guidelines for establishing the system of RPL. Learners will have to provide evidence to support their prior learning claim that they have the required knowledge and skills outside the learning path if they expect the VET provider to waive off some credits. However, the process of skills recognition in the informal economy will need to be accompanied by provision of infrastructure which is affordable, reliable and efficient. There will be challenges in identifying skill sets, documenting those skills, communicating to the potential candidates, as well as administering the process. Methods will need to be established, such as portfolio review, written/oral exams, and demonstrations. An open examination system under the NSQF with relevant academic and skill standards would have to be created for skill recognition and certification, so that it benefits all those people who have acquired their knowledge and skills outside the education system and wish to become life-long learners (see chapter 12).

9   The Way Forward Potential Areas of Improvement in National Skill Qualification Framework

The Government of India has initiated the process of revising the NPSD 2009 to give necessary impetus to the skill development and entrepreneurship development programmes.

9.1   Education and Training System

The NSQF and RPL may consider the following potential areas of improvement related to the education and training system:

a) Quality and quality assurance
b) Teacher's qualifications
c) Gender and geographical differences
d) Transparency and recognition in individuals' qualifications and mobility
e) Educational levels of working age population
f) Stakeholder cooperation

The priorities of the government with the NSQF are to make qualifications uniform and comparable and do away with the differences in course content, entry

requirement, duration of vocational courses, and the quality of education and training across institutions and States/UTs, rendering in the development of competencies useful for wage or self-employment. For example, currently in the plumbing sector, the duration for the 'Certificate' course in Plumbing/ Sanitary Hardware Fitter/Plumber through the face-to-face mode is 2 years, 1 year, 6 months and 4 months and the entry requirements range from 12th Grade fail to 10th Grade pass. The 'Certificate' course in Plumbing/Plumber is offered for duration of 1 year, 6 months and 3 months through the open learning system and the entry requirement ranges from 10th Grade to 12th Grade or pass-out from ITIs. The Diploma programme in Plumbing offered through the open learning system is also of 1 year duration and the entry requirement is 10th Grade pass or those who have completed 15 years of age (these candidates will have to clear the Bachelor Preparatory Programme) (Mehrotra 2008). Also, according to the NSSO survey report, VET is not relevant for gaining employment or self-employment. Only 44% of the trainees said the training helped them in securing salaried or wage employment and for nearly 16% of trainees, the VET was helpful in self-employment. However, the training was reported to be not so useful to about 29% of the participants (NSSO 2013). The current VET system and infrastructure does not have the capacity to responds to the sector's wide-ranging and changing skill needs.

In order to rectify the problem of differences in content, entry requirement and duration, the NSQF has been put in place to ensure that the workforce get quality VET opportunities through a uniform system of skill standards set by employers. Such a quality assurance system would be the key factor in the success of VET and also a way out of the problem of current levels of unemployment (being around 46 million, it is likely to grow to anywhere between 50-60 million in the next 8-10 years). As per 12th Five Year Plan projections, about 25 million new entrants would join the labour force in the next five years (Government of India 2013).

Vocational teachers will have to be trained on 'student-centred' teaching methods which should also include use of simulated and e-learning materials, role play, small group work, discussion, debate, problem solving, cognitive apprenticeships, modelling, and a host of other teaching practices that reverberates the constructivist approach to teaching-learning (Mehrotra 2014b) (see chapter 9). The pre-service and in-service teacher training programmes in India are inherently biased towards meeting the demand of academic education and uses traditional teaching methods and techniques for training teachers. Massive Open Online Courses (MOOCs) model should be used to train teachers and students on soft or generic skills. Online aptitude tests should be utilized to provide opportunities to students to select the courses based on his/her aptitude and interest. Video based

content can help in supplementing learning. In a joint initiative, the Skill Development Network (SDN) of Wadhwani Foundation and PSSCIVE developed e-learning modules for General Duty Assistant and IT-Helpdesk Assistant, which are based on the learning outcome, based curricula developed by PSSCIVE for the two job roles. The National Mission for Education through Information and Communication Technology (NMEICT) can play an important role in providing high quality, curriculum-based interactive content for all vocational subjects and host them on the Learning Management System platform in open access.

The 12th Five Year Plan (2012-2017) aims at improving the outreach of the skill development, both quantitatively and qualitatively to bridge the divides, namely spatial, sectoral, regional and gender and so on. It also advocates the development of NSQF, incorporating the standards developed by SSCs, and have in place a regulatory framework to oversee the functioning and accountability of SSCs. Use of ICT and Mobile Vans for expanding outreach is one of the measures suggested in 12th FYP. A rural broadband initiative of the Ministry of Communications and Information Technology, Government of India proposes to connect 50,000 panchayats using high capacity broadband connectivity and providing content for skill development. Citizen Service Centres are being set up to deliver skill development through information technology.

In order to reap the benefits of demographic dividend, there is a need to enhance the capacity of the institutions, promote PPP models, adopt innovative and flexible training delivery modes, and offer a wide variety of vocational subjects/courses to attract the learners to VET. All regulatory/awarding institutions (e.g. University Grants Commission, All India Council for Technical Education, National Council for Vocational Training, Technical and School Boards, etc.) will have to define their entry and exit competencies and qualifications in terms of NSQF levels so that provision for vertical progression in both general and vocational education would be strengthened and vocational pass-outs are able to gain entry into respective portals of higher education in the vocational/ technical/ general education courses, including degree level courses (Ministry of Finance 2013). Vocational courses should not prove to be dead ends and articulation arrangements should be made for initial and continuing VET. Entrepreneurship education should be integrated at various levels in all subjects. Developing uniform and structured pathway for students taking vocational subjects in secondary and higher secondary education would be the key to the success of vocational education programmes.

Understanding of the benefits and operational aspects of NSQF amongst the various stakeholders implementing the skill development programmes is important. A clear understanding of what NSQF is (for example, it is a bridging device between different sectors or levels of education and training) and what it does (for example, it is a quality assurance mechanism which would also lead to greater

transparency in education and training sector) would help in greater participation of people and effective implementation of skill development programmes under NSQF. The joint effort and the consensus of relevant and visible leaders comprising employers, workers, educators and government officials will be the single most important factor for the success of skilling Indian youth under the NSQF (Singh 2012).

9.2   The Labour Market

Indian government policies on education and employment aim at training young and working individuals to achieve qualifications required by the labour market so that current and future requirements of economic development can be met. Compared to the growing population and particularly the growth of new entrants into the labour market, the numbers of VET places are disproportionately low. Dual forms of learning are now used more effectively in vocational secondary education whereby the link between education and labour market is strengthened (see chapter 8).

The NSQF implementation may consider the following potential areas of improvement related to the labour market:

a) Alignment of labour market needs with the qualifications available;
b) New qualifications to be developed in line with the emerging needs;
c) Arrangement for greater funding and credit facilities for students opting for VET. Indian Banks' Association has launched a Model Loan Scheme for providing loans from INR 20,000 up to 150,000 for skill development training programmes of various durations. A Credit Guarantee Funds Scheme for skill development to provide a guarantee against default in repayment of education loans extended by lending institutions has also been launched;
d) Participation of employers in financing of vocational education. Under the new Companies Act 2013, vide section 135 of the Act, 2% spending on Corporate Social Responsibility (CSR) is mandated out of the average net profit made by the company during every block of three years which would cover activities like employment enhancing vocational skills;
e) Recognition of learning at the workplace and improvement of vocational training;
f) An online national register of the persons skilled and their current engagement should be established at the national level for providing a national database to employers and other stakeholders. This should be in

addition to the register of qualifications which contains all qualifications approved and available and updated regularly;

g) Greater interaction between industry, academia, skill providers to narrow the gap between demand and supply of skilled manpower, improvement in quality of training by focusing on training of trainers, promotion of PPP in skill development and an outcome based approach to training, which ensures that the employability created is manifested in measurable and tangible wage or self-employment of trainees;

h) New qualifications need to be developed along emerging needs;

i) Active labour market participation in vocational education decision making;

j) Expanding the coverage of vocational courses under the NSQF by amending the Apprentices Act, 1961 and the relevant rules to cover small, medium and large enterprises; and

k) Review of labour laws for facilitating the hiring of short term interns and trainees.

There are 21 Central Ministries who are funding skill development programmes under various schemes through specialised institutions and training centres. State Skill Development Missions (SDM) has been set up by various states to work out an integrated strategy for skill development and enhancing the employability of youth in the state. A coordinated action is needed to bring about policy coherence and improvement in quality of various schemes, including '*Hunar Se Rozgar*' scheme implemented by the Ministry of Tourism, Entrepreneurship Skill Development Programmes of Ministry of Micro, Small and Medium Enterprises, '*Ajeevika*' (Livelihood) scheme of Ministry of Rural Development, Integrated Skill Development Scheme of Ministry of Textile, Support to Training and Employment Programme (STEP) for women implemented by the Ministry of Women and Child Development, Community Development Programme of MHRD, '*Seekho Aur Kamao*' (Learn and Earn) scheme of the Ministry of Minority Affairs, skill development programmes for Persons with Disabilities of Ministry of Social Justice and Empowerment and STAR Scheme of Ministry of Finance. The Ministry of Skill Development and Entrepreneurship (MoSD&E) formed in June 2014 has an overwhelming task of coordinating with the various Central and State government departments, academic institutions, TVET institutions and regulators for taking a variety of skill development schemes and programmes forward and aligning them with the NSQF.

References

ASER Centre (2014): Annual Status of Education Report. URL: http://www.asercentre.org/.

Cedefop (2009): Modernising Vocational Education and Training. Luxembourg: Office for Official Publications of the European Communities. Fourth Report on Vocational Training Research in Europe: Background Report. Vol. 3.

Cedefop (2012a): Curriculum Reform in Europe: The Impact of Learning Outcomes. Luxembourg: Publications Office of the European Union. Research Paper, No 29.

Cedefop (2012b): Analysis and Overview of NQF Developments in European Countries. Annual Report 2012. Working Paper, No. 17. URL: http://www.cedefop.europa.eu/EN/Files/6117 en.pdf.

Cedefop (2013): On the Way to 2020: Data for Vocational Education and Training Policies-Indicator Overviews. Luxembourg: Publications Office of the European Union. Research Paper, No. 33.

Census (2011): URL: http://censusindia.gov.in/.

FICCI-KPMG (2014): Skilling India - a Look Back at the Progress, Challenges and the Way Forward. URL: http://www.ficci.com/publication-page.asp?spid=20405.

Government of India (1988): Scheme of Vocationalisation of Secondary Education 1988. New Delhi: Ministry of Human Resource Development.[10]

Government of India (2005): National Curriculum Framework 2005. New Delhi: National Council of Educational Research and Training.[11]

Government of India (2009a): Report of 'The Committee to Advise on Renovation and Rejuvenation of Higher Education'. URL: http://www.academics-india.com/yashpal-committee-report.pdf.[12]

Government of India (2009b): Skill Formation and Employment Assurance in the Unorganised Sector. National Commission for Enterprises in the Unorganised Sector.[13]

Government of India (2011a): Statistics of School Education, 2009/10 (Provisional). New Delhi: Ministry of Human Resource Development.[14]

Government of India (2011b): Annual Report 2010/11. New Delhi: Ministry of Human Resource Development.[15]

Government of India (2011c): Fifty Eighth Meeting of the Central Advisory Board of Education. Agenda Items and Background Notes. New Delhi: Ministry of Human Resource Development.[16]

---

[10] MHRD. 1988. Scheme of Vocationalisation of Secondary Education 1988, Ministry of Human Resource Development, Government of India.

[11] NCERT. 2005. National Curriculum Framework 2005, National Council of Educational Research and Training, New Delhi.

[12] MHRD. 2009. Report of 'The Committee to Advise on Renovation and Rejuvenation of Higher Education'. http://www.academics-india.com/yashpal-committee-report.pdf. Accessed on 21.7.2014

[13] NCEUS. 2009. Skill Formation and Employment Assurance in the Unorganised Sector, National Commission for Enterprises in the Unorganised Sector. http://www.nceus.gov.in (Accessed 14 August 2011.)

[14] MHRD. 2011a. 'Statistics of School Education, 2009–10 (Provisional)'. Bureau of Planning, Monitoring and Statistics, Ministry of Human Resource Development, Government of India.

[15] MHRD. 2011b. Annual Report 2010–11. Department of School Education and Literacy and Department of Higher Education, Ministry of Human Resource Development (MHRD), Government of India.

[16] MHRD. 2011c. Fifty Eighth Meeting of the Central Advisory Board of Education. Agenda Items and Background Notes. MHRD, Government of India.

Government of India (2012a): National Vocational Education Qualifications Framework (NVEQF). New Delhi: Ministry of Human Resource Development. URL: http://mhrd.gov.in/sites/up-load_files/mhrd/files/EXECUTIVE%20ORDER_new.pdf.[17]

Government of India (2012b): Twelfth Five Year Plan (2012-2017) Social Sectors. New Delhi: Planning Commission. Vol. III. [18]

Government of India (2013a): Invt on the National Skills Qualifications Framework (NSQF). Department of Economic Affairs, Ministry of Finance. Notification, No. 08-06-2013.[19]

Government of India (2013b): Employment and Skill Development. New Delhi: Planning Commission. URL: http://planningcommission.gov.in/hackathon/Skill%20Development.pdf.

Government of India (2013c): Status of Education and Vocational Training in India–2009 / 10. New Delhi: National Sample Survey Organisation (NSSO). URL: http://mospi.nic.in/mospi_new/up-load/nss report 551.pdf.[20]

Government of India (2014): Annual Report 2013-14. New Delhi: Ministry of Human Resource Development.[21]

Institute of Applied Manpower Research (2012): A Proposed National Qualifications Framework for Vocational Education for India. IAMR Delhi: Institute of Applied Manpower Research. Occasional Paper, No. 4-2012.

Lasonen, J. and Gordon, J. (2008): Improving the Attractiveness and Image of VET. In: Modernising Vocational Education and Training. Luxembourg: Office for Publications of the European Communities. Fourth Report on Vocational Training Research in Europe: Background Report. Vol. 3. Cedefop Reference Series 71. URL: http://www.cedefop.europa.eu/etv/Information_re-sources/Bookshop/publication details.asp?pub id=567.

Maclean, R. and Wilson, D. N. (2009): Introduction. In: Maclean, R. and Wilson, D. N. (Eds.): International Handbook of Education for the Changing World of Work: Bridging Academic and Vocational Learning. Netherland: Springer VS.

Maclean, R. and Pavlova, M. (2013): Vocationalisation of Secondary and Higher Education: Pathways to the World of Work. In: Majumdar, S. (Ed.): Revisiting Global Trends in TVET: Reflections on Theory and Practice. Bonn: UNESCO-UNEVOC. URL: http://www.unevoc.unesco.org/filead-min/up/2013 epub revisiting_global_

trends in tvet chapter2.pdf.

Mehrotra S., Gandhi, A. and Sahoo, B. K. (2013): Estimating India's Skill Gap on Realistic Basis for 2022. In: Economic and Political Weekly. Vol. 48, No. 13, pp. 102-111.

Mehrotra, V. S. (2008): Vocational Education and Training in India. Where do we go from here? In: Indian Plumbing Today. Pp. 8-15.

Mehrotra, V. S. (2012): Integrating academic and vocational education: Making the Link through National Vocational Education Qualifications Framework. In: COMOSA Journal of Open Schooling. Vol. 3, No. 1, pp. 30-48.

17 MHRD. 2012. National Vocational Education Qualifications Framework (NVEQF) - Executive Order, F. No.1-4/2011-VE, dated the 3rd September, 2012, pp.15. New Delhi: Ministry of Human Resource Development, Government of India.

18 Planning Commission. 2012. Twelfth Five Year Plan (2012–2017) Social Sectors, Volume-III, pp. 124-162, Planning Commission, Yojna Bhawan, New Delhi.

19 Ministry of Finance. 2013. Notification No. 8/6/2013-Invt on the National Skills Qualifications Framework (NSQF). Gazette of India. Extraordinary, Part 1, Section 2. Department of Economic Affairs, Ministry of Finance, Government of India.

20 NSSO.2013. Status of Education and Vocational Training in India- 2009-2010 (Report No. 551(66/10/6). National Sample Survey Organisation (NSSO), Ministry of Statistics and Programme Implementation, Government of India.

21 MHRD. 2014. Annual Report 2013-14. Ministry of Human Resource Development, Government of India.

Mehrotra, V. S. (2014a): Work Based Education and Training in Schools: Concept, Issues and Challenges. In: Indian Plumbing Today. Pp. 196-201.

Mehrotra, V. S. (2014b): Role of Vocational Teachers in Skill Development Initiative in Schools under the National Skills.

MoL&E (2009): National Policy on Skill Development. Ministry of Labour and Employment, Government of India.

NIOS (2013): Framework for Recognition of Prior Learning. Noida: National Institute of Open Schooling.

NSDC (2014): Sector Skill Councils of India. URL: http://www.nsdcindia.org/.

OECD (2010): Education at a Glance: OECD indicators. Paris: Organisation for Economic Co-operation and Development (OECD). URL: http://www.oecd.org/education/skills-beyond-school/45926093.pdf.

Pavlova, M. (2005): Life Skills for Employability, Citizenship and Sustainable Development: A Case Study of the Vocationalisation of Secondary Schooling in Russia. In: Prospects. Vol. 35, No. 3, pp. 343–354.

Singh, M. (2012): India's National Skill Development Policy and Implications for TVET and Lifelong Learning. In: Pilz, M. (Ed.): The Future of Vocational Education and Training in a Changing World. Wiesbaden: Springer VS. Pp. 179-211.

UIS-UNEVOC (2006): Participation in Formal Technical and Vocational Education and Training Programmes Worldwide: An Initial Statistical Study. Bonn: Institute of Statistics (UIS)-International Centre for Technical and Vocational Education and Training UNESCO-UNEVOC.

Winterton, J. (2000): Social Dialogue over Vocational Training in Market-led Systems. In: International Journal of Training and Development. Vol. 4, No. 1, pp. 26-41.

Young, M. F. D. (2009): Implementing National Qualifications Framework: Problems and Possibilities. In: Maclean, R. and Wilson , D. (Eds.): International Handbook of Education for the Changing World of Work. Wiesbaden: Springer VS. Pp. 2917-2933.

Labour Market and Recruitment: Education and Employability – Learning from the Indian IT / ITES Industry

Narendra M. Agrawal, Mendu Rammohon Rao and Sudheesh Venkatesh

1   Abstract

Lack of technical and interpersonal skills in Indian engineering graduates remains one of the major reasons for low employability of young technical graduates and hence it has become a constraint to the growth of the Indian economy. 60% of the country's population will be in the working age group by 2020 and India has a very good opportunity to take advantage of its demographic dividend. But without a clear educational and competency building road map, it could also turn against it leading to large levels of unemployment amongst the fresh graduates. The Government's target to skill and employ 500 million people by 2022 shows the urgency of the situation, but it will require a well-defined strategy and effective execution by collaboration between industry, academia, professional institutions and government to achieve the vision of employment for everyone. This study develops a model for enhancing the employability of graduates, specifically of engineering graduates, by examining the following aspects in context of the Indian Information Technology (IT) Industry:

1. What are the key factors that have led to a decline in employability of engineering graduates in India?
2. What have been the key initiatives taken by the Indian IT industry which have helped the industry to grow for the last two decades in spite of the low level of technical knowledge and employability of Indian graduates?
3. What are the initiatives taken by the Indian Government, Indian academic institutes, industrial associations, National Skill Development Corporation (NSDC) and private software training centres to overcome the problems of competence and employability of graduates in the Indian IT Industry?

Based on extensive studies of the Indian IT industry (Agrawal and Rao 2002; Agrawal and Thite 2006; Agrawal, Khatri and Srinivasan 2012), the authors conclude that technical competencies and soft skills are very important for an engineering graduate aspiring to work in the Indian software service industry. The findings suggest that the Indian IT industry to a large extent has been able to overcome these challenges by on-the-job training and by effective collaboration between multiple stakeholders interested in the growth of the Indian IT industry. The authors suggest that similar strategies and interventions have to be used in other sectors to enhance the employability of young graduates. Various agencies need to ensure that the young graduates are facilitated to acquire finishing school training before they join an industry. The industry and organisations need to work in collaboration with the government agencies for providing finishing skills training on a large scale. In addition, technical institutions should actively work in collaboration with industry leaders to learn about emerging challenges in the context of new technologies and new markets with which Indian organisations have been working after liberalization of the Indian economy. The newly constituted NSDC is expected to play a major role in improving the linkages between Indian industries, academic institutions and private training agencies by defining the skills requirements, skill assessments and creating opportunities of superior learning for the young graduates (see chapter 13).

2   Introduction

The abundance of capable, flexible and qualified human capital has gradually led to India evolving as a knowledge-based economy. However, India needs to further build up and empower the human capital to ensure its global competiveness. With the opening up of the economy and rise in exports, enhancing the productivity of the workforce is a major challenge for many corporations in India. Further, as the Indian economy grows, a large number of skilled persons would be required to sustain its growth (Chenoy 2012).

The Indian economy grew at an impressive rate of about 7% on an average over the five year period 2005-2009, including the year of the enormous financial crisis in 2009. However, the shortage of skills has been one of the major limitations in most industries in India (World Bank 2008; Aurora and Dhingra 2009). Both manufacturing and service sectors are in difficult situations due to unmet demand for skills. According to National Association of Software and Services Companies (NASSCOM) (NASSCOM and McKinsey 2005), only 25% of the engineering graduates are employable by a multinational company. The rest would have to go through rigorous training before companies could effectively

employ them. Many employers link this lack of skills to the shortcomings in the education system. The higher education system has somehow responded to the rising demand for engineers by massively expanding the supply of engineers by increasing the number of seats available for engineering education by about 800% during the period 1998 to 2008 (GoI 2008). Gautam, Chopra, Jha and Singh (2010) observed that this quantitative expansion led to an average decline in the quality of the students being enrolled, the quality of teaching and learning and the quality of graduating engineers.

A World Bank Report (2000) on Indian scientific and technical manpower development observed that the scientific and technical manpower development in India has been highly theory focused rather than practice-oriented. The technical institutions in India have not kept pace with the development in knowledge and technology and do not ensure that graduating students are ready to work as professional engineers in the industry. And hence, the task of making educated technical manpower productive at the earliest after graduating has yet to be realised by a large number of technical institutes.

Given the lack of readiness of technical graduates, one would expect organisations to invest in a big way in 'in-service' training. But the World Bank Report (World Bank 2008) on India Country Strategy for the Year 2009–12 observed that 'in-service' training would be received by only 15% of workers in the Indian manufacturing sector, which is far below what is observed in many other countries. Inadequate availability of training capacity is one of the main reasons for a comparatively small percentage of Indian manufacturing workers being planned to be trained. An International Labour Organisation Report (2011) observes that 80% of the fresh entrants to work force in India do not get any kind of skill training (see chapter 5).

By the year 2022, about 700 million Indians are estimated to be of working age and about 500 million will require some kind of vocational or skill development training. The government has identified ten sectors each in manufacturing and service sectors with high growth potential for providing employment. The total estimated requirement of skilled work force by 2022 will be about 300 million (GoI 2009).

In the following section we discuss the case study of the Indian IT/Information Technology Enabled Service (IT/ITeS) industry, as it employs the biggest share of the 600 thousand engineering graduates that India produces every year and has been able to show a consistent growth despite all the problems related with engineering education discussed earlier in the paper. We examine the various initiatives taken by NASSCOM, Indian academic institutes, the Indian Government and the government agencies to overcome the problems and challenges faced. Based on our findings from the case study, we develop a model to show the ways

of enhancing the employability of fresh Indian graduates in other industries and the service sectors.

3   Indian Information Technology/Information Technology Enabled Service Industry: Growth and Challenges

The Indian IT/ITeS industry has become an integral and an important part of the Indian Economy because of its size in terms of revenue, profitability, foreign exchange earnings, number of people directly and indirectly working with the industry and its cumulative rate of growth. The estimated revenue of the Indian IT industry is about 7.5% of India's GDP, about 25% of Indian export and 11% of total services revenue (NASSCOM 2012). The total direct employment in the industry till 2013 has been about three million while the indirect job creation has been estimated at almost nine million. India's share in the global outsourcing market rose to 58% in 2011 from 51% in 2009. India's IT and Business Process Outsourcing (BPO) sector exports are expected to grow by 12 to 14% in 2013-14 and touch 84 to 87 billion US Dollars, according to NASSCOM (2012). The growth till date of the Indian software industry has been mainly due to its cost competitiveness and the availability of a large pool of engineering graduates.

During the last 20 years, many of the problems related with employability of young graduates, were also experienced by the Indian IT industry. However, the IT industry and the stakeholders interested in the growth of the Indian IT industry such as academic institutions, the Indian Government and its agencies, NASSCOM and private training centres have taken a number of initiatives to enhance the supply of employable fresh graduates. In the following sections, we discuss some of the major problems faced by the Indian IT industry and initiatives taken by the Indian IT Industry and its stakeholders to overcome those problems. Based on the learning from the case study of Indian IT/ITeS industry for enhancing employability of young graduates, we develop a model for enhancing the employability of young graduates. The industries in manufacturing and service sectors can examine the possibilities of using the model for enhancing the employability of fresh manpower they aspire to recruit for sustaining their growth.

4 Information Technology/Information Technology Enabled Service Human Resource Challenges and Initiatives to Overcome Them

4.1 Shortage of Qualified Workers

The Indian IT industry has been mostly recruiting engineering graduates because of the perceived notion that engineers because of their superior analytical skills and learning capabilities can do a better job of software development (Gokuldas 2010). Since the Indian IT industry has been growing almost for two decades starting from 1991 at 30 to 40% cumulative growth rate, the industry has been recruiting fresh engineering graduates irrespective of their engineering discipline. Large IT companies such as Infosys and TCS provide three to six months technical training to fresh engineering graduates about industry practices (see chapter (chapter 8 and 11). The training curriculum focuses on software skills and on project management basics. In addition, some inputs related to soft skills are also covered as a part of the training programme.

4.2 Increasing Cost of Manpower and Training

Low manpower cost and abundant supply of trained manpower have been factors contributing to the growth of Indian IT industry in the initial years. However, the rapid growth of the Indian IT industry led to increase in manpower cost and companies have been finding it difficult to put a very large pool of fresh manpower through long duration programmes. In addition, training cost has also increased significantly in the last decade. In addition, since the Indian IT companies have been diversifying their market and customer portfolios across new geographies and new domains, senior managers also needed to be trained in domain competencies, business management skills and cross-cultural intelligence.

Indian IT companies have been adopting new and innovative way to reduce the training costs and simultaneously increase the number of trained software professionals. Classroom training is substantially replaced by e-learning including learning through mobile applications. Companies are partnering with vendors who train freshers even before they are hired. Organisations such as HCL are moving towards providing 'just-in-time' training for roles being given to employees. The focus is on substantially reducing classroom training time and the cost of training. Mindtree, a software company which delivered 90% of its training through classrooms till a few years ago, has brought down the classroom training to 40%, with 60% online training. It has helped Mindtree to slash training costs by a third and has helped the organisation to enhance the number of people being trained by

them. Harvard Business School courses being very expensive were reserved only for senior managers. Since now these courses are available online at a much lower cost, even middle managers are nominated for these management programmes.

4.3   Lack of Soft Skills

The results of a survey (Viswanadhan 2005) indicated that new engineers perform only at an average level in the area of 'knowledge of technology' and 'technical skills', below average in 'behavioural skills' and just satisfactory in 'managerial skills'. It has been found that students' performance in terms of soft skills has a considerable significance in ensuring the employability of engineering graduates in campus recruitment drives (Gokuladas 2010). Soft skills are behaviours which can be learned through training and application (Rani 2010). The IT industry lays great emphasis on the fact that graduates destined for a corporate career need to acquire a certain level of proficiency in written as well as oral communication skills, team building, leadership and time management. Doke and Williams (1999) found that computer programming knowledge and skill becomes less important as the career of an IT professional progresses.

Many IT companies have introduced soft skill training for their fresh recruits along with the regular technical training. For example, the 'Global Education Center' of Infosys delivers soft skills and leadership training for fresh graduates as well as for senior and middle level managers. As a part of the soft skills module, the training is imparted on global etiquettes, comportment, importance of body language, public speaking, improving interpersonal communication and team-building. Experiential training methods such as case studies, games and role-plays are extensively used to enhance the effectiveness of soft skills and leadership training.

4.4   Delivering Current Technology and Practice oriented Curriculum

Indian university systems being rooted in strong bureaucracy do not facilitate continuous up gradation of curriculum in line with the need of the Indian IT industry. Hence, the fresh graduates from university systems do not have the latest knowledge and need to be trained by the employing organisations. For resolving this problem, many IT companies have started sharing current technical knowledge and industry work practices with the academic institutes. IT companies have also started academic programmes to train their employees in collaboration with the academic institutes (see chapter 8). Wipro and Cognizant Technology

have started sandwiched academic programmes in collaboration with reputed academic institutes. Wipro has started an academy of its own known as Wipro Academy of Software Excellence (WASE) to train and create its own software professionals. It offers a four year sandwiched postgraduate programme in collaboration with a well-known engineering institute, namely Birla Institute of Technology and Science (BITS), Pilani. The programme is meant for fresh science graduates with specializations in Physics, Mathematics, Computer Science or Electronics. The applicants should have less than one year of experience. The programme consists of alternate modules of classroom inputs by BITS faculty and on-the-job training in different divisions of Wipro. Further, some software companies also offer employment to computer science and IT teachers during summer vacation. This scheme provides an opportunity for university teachers to work for about three months per year in software and IT companies. Three months is a reasonably long period for university teachers to update themselves with what is current in the industry (Agrawal and Rao 2002).

Many multinational companies have formed partnership with academic institutions on specific initiatives such as faculty development, internships for students and curriculum revision workshops. For example Coimbatore-based Karunya University and Novell Inc., a multinational software and services company headquartered in Provo, Utah recently collaborated with each other under which the University is offering a Master of Technology (M. Tech.) programme in IT. A team of professionals from Novell have trained 15 Karunya faculty members on 'train the trainer programme'. They have also set up the Novell Center of Excellence on the campus to support lab experiments of post-graduate students. As part of the agreement, Karunya University is an authorized Novell Practicum Center where students can write certificate examinations and become Novell certified professionals after finishing their course (Rege 2014).

4.5   Shortage of Faculty

The phenomenal growth of engineering institutes in India has led to substantial shortages of faculty. Even the national institutes of technology such as Indian Institutes of Technology (IITs) and Indian Institutes of Information Technology (IIITs) have been experiencing shortage of faculty. Due to substantial differences in pay and other facilities being offered by academic institutions and software companies, academic institutions are not able to attract and retain bright software professionals as teachers. Students from IITs and other better colleges have been getting jobs with excellent salaries in software organisations. As a consequence, registration for post-graduate and doctoral programmes was extremely poor in the

last decade even in the IITs. A few students who aspired to study advanced courses in IT and software related fields preferred to study in US universities rather than in Indian universities. Apparently, many of them prefer to settle in USA after completing their post-graduation or doctoral programmes. As a consequence, the supply of professionals with high qualifications in software related fields was very meagre in the last decade. This in turn has affected the availability of professionals who could join teaching professions in national institutes and corporate and private training centres (see chapter 9).

Viewing this, some software organisations have adopted colleges in their vicinity, providing computer science and IT courses. These organisations provide infrastructure support to these colleges. But more importantly, many of them, on a regular basis, provide faculty support to these colleges. It helps the institutes to teach the latest tools, technologies and work practices in their academic programmes. Further, for attracting candidates for the post-graduate and doctoral programmes in software and related subjects, a number of software organisations, in the recent past, have offered very attractive scholarships for post-graduate and doctoral programme students in software and IT related disciplines in IITs and Indian Institutes of Management which would help in creating more researchers and teachers (Agrawal and Rao 2002).

Infosys had launched a programme called 'Campus Connect' in 2004 to enhance the quality and quantity of the IT talent-pool to sustain the growth of the IT industry itself. Infosys works with academic institutes to align college curriculum with the industry's requirements. The company organises seminars and training sessions for the faculty to give them an industry perspective, enabling them to train students accordingly. In addition, the company also develops industry-oriented topics, and makes the courseware available to students (Infosys 2014).

Apart from these initiatives by the Indian IT organisations, several new measures were taken by national universities, the NASSCOM, the Government, NSDC and private training institutes for enhancing the employability of the young graduates in the Indian IT Industry. In the following sections, we examine some major initiatives taken by these agencies and institutions.

5   Initiatives Taken by National Universities

In the last decade, national institutes like the IITs, the Indian Institute of Science (IISc), the IIITs and the Indian Institutes of Management (IIMs) have taken a number of initiatives to provide leadership to colleges teaching software and IT related courses in the university set up. Some of the innovative initiatives by these national institutes have been in the area of developing course material for software courses, training the teachers, offering their degree programmes at multiple locations and

providing short-duration training programmes for the software industry. In addition, these national institutes have been offering a number of courses in distance education mode. Some of these initiatives are described below:

- IIT Bombay recently started the 'Spoken Tutorials' project which attempts to provide IT training through audio-video tutorials, created for self-learning (Deshpande 2014). The topics covered are programming languages, simulation and circuit design platforms and office productivity tools, all using open source software. It has been a resounding success with more than 300 thousand students getting trained on different aspects. Interestingly, many students who have learnt software using Spoken Tutorials are able to secure jobs in the IT sector, sometimes in multinational corporations, just on the strength of training received at Spoken Tutorials. The Spoken Tutorials Project was started in 2010 with funding from the National Mission on Education through Information and Communication Technology, of the Ministry of Human Resource Development (MHRD). Due to this funding, the course is available free to participating students (Deshpande 2014).
- The National Programme on Technology Enhanced Learning (NPTEL), a project funded by the MHRD India, provides e-learning through online web and video courses in engineering, sciences, technology, management and humanities. This is a joint initiative by seven IITs and the IISc Bangalore. It has developed curriculum based video courses and web-based e-courses targeting faculty and students offering undergraduate engineering programmes (NPTEL 2014).
- A collaboration agreement between the IIITs, Bangalore and Samsung Research and Development Institute India, Bangalore was signed recently on January 21, 2014 at the IIITs Bangalore campus with the objective of fostering collaboration between the two institutions to promote academic and research interactions for industry-centric knowledge and skill development. The institute would run educational programmes to meet the human resources development needs of Samsung leading to specific degrees from the IIIT, Bangalore through its Work Integrated Learning Programmes. These programmes will have the same rigor and standards as those offered on-campus and will be equivalent to the corresponding degrees offered on-campus (This Week Bangalore 2014).
- Infosys Technologies has initiated a Special Training Programme (STP) partnering with universities in five Indian states, which include the IIIT, Bangalore, Institute of Electronic Governance, Jawaharlal Nehru Technological University in Hyderabad, Symbiosis Institute in Pune and

Malaviya National Institute of Technology, Jaipur (Infosys 2008). The main aim is to build competencies and enhance the employability for engineering students from socially disadvantaged sections. The STP curriculum balances technical training, soft skills training, guest lectures, industry visits and team project work, over a period of six months. In the year 2012 around 449 of the 552 trained students had been placed in established companies and had been recognised as high performers.

6 Initiatives taken by National Association of Software and Services Companies

Established in 1988, the NASSCOM is a trade association of the Indian IT and Business Process Outsourcing BPO industries. NASSCOM facilitates business and trade in software and services and encourages the advancement of research in software technology. Some of the key initiatives taken by NASSCOM to enhance the Indian IT industry are:

- Mentor skilling programmes: In the recent years, a number of start-ups have risen and have contributed over five billion US Dollars to the Indian IT industry. To encourage this activity, NASSCOM has started various mentor-based programmes with the aim to advise smaller players about how to compete effectively against big IT companies (NASSCOM 2014a).
- Capacity Building: Recognising the urgent need to bridge the existing skills gaps within the IT-BPO sector and help improve the employability and quality of manpower emerging from India's education system, NASSCOM has remained extremely active within the skills development space. More recently, under India's NSDC initiative, NASSCOM has become a part of the IT-BPO Skills Sector Council (SSC).
- NASSCOM is also helping the industry to gain clarity on the competencies required for industry sub-verticals including IT services, BPO services, knowledge services and remote infrastructure/infrastructure management services (RIM/IMS). In order to gauge the proficiency of people for careers within the IT-BPO industry, NASSCOM has launched the NASSCOM Assessment of Competence (NAC) and NAC-Tech initiatives, and is helping the industry to gain an idea of the kind of manpower available at the entry, middle and higher levels (NASSCOM 2014a).
- NASSCOM is developing national occupational standards based on job numbers and roles to determine the kinds of competencies and training

required. It is planning to put a blueprint in place so training providers can integrate their course planning based on the manpower requirement of the Indian IT industry.

7   Initiatives Taken by the Government

In addition to providing support to national institutes for furthering the cause of software education, the Government of India has taken some major initiatives to promote the IT industry and IT education in the country.

- The MHRD and some state governments have provided support for starting national level autonomous institutes for IT education namely, the IIITs. These institutes combine the innovativeness of autonomous academic institutions and the experience and market responsiveness of the corporate world.
- National Resource Centre for Free and Open Source Software (NRCFOSS) is an initiative of the Department of IT, Ministry of Communications and Information Technology, Government of India. NRCFOSS, setup in Chennai in April 2005, plays a huge role in strengthening the Indian Software industry. The Centre for Development of Advanced Computing (C-DAC), Chennai is one of the implementing Agencies of NRCFOSS. C-DAC has been doing significant work in the field of finishing school training such as e-learning courses on Linux kernel programming, Linux system programming and device drivers, workshops like BOSS (Bharat Operating System Solutions) and Open Office workshops (NRCFOSS 2014).

8   Initiatives Taken by the National Skill Development Corporation India

Launched in 2009, the NSDC is a one of its kind public-private partnership in India which was set up as part of a national skill development mission to fulfil the growing needs in India for skilled manpower across sectors and narrow the existing gap between the demand and supply of skills. Some recent initiatives are:

- NASSCOM and the NSDC have focused their efforts on helping the youth of India acquire IT skills which would improve their employability (NASSCOM 2014b). Both these bodies supported Indian participants at the Forty Second World Skills Competition, 2013 at Germany.

- The IT/ITeS SSC was formed between NASSCOM and the NSDC (NASSCOM 2014b). The primary objective of this Council is to develop the workforce in the IT and ITeS sectors. Unique job roles and qualification packs have been created at the entry, middle and leadership levels.

9   Initiatives Taken by Private Training Centres

- Corporate and private software and IT training centres came into existence during the 1970s to provide education for computer awareness. The growth of the IT industry has led to an increased demand for these training centres providing on-the-job training, running skill development institutes and financially supporting non-profits and social businesses as providers of the training. They also act as accreditation bodies. Accreditation is a process of establishing requisite elements of vocational and educational training and its ability to carry out evaluation of competence acquired by the students, so as to make professional judgment (Agrawal and Rao 2002).
- The Cisco Networking Academy (NetAcad) is a corporate institute responsible to train students to gain skills needed to build, design and maintain computer networks, thus improving their career prospects. Currently, there are over a 160 Cisco Academies (across 26 states and union territories) with more than 700,600 students currently enrolled in the programme. In India today there are over 670,000 Cisco certified professionals. In addition to imparting IT knowledge and networking skills, NetAcad also aims to bridge the 'digital divide' as it takes technical education to rural India including technologically backward states like Kashmir, Orissa and Tripura. The NetAcad is in line with the needs of Indian colleges, and features project-driven training in high-demand job skills. The curriculum designed by NetAcad incorporates hands-on experience when teaching students about computer networks (Cisco 2014).
- NIIT, a private company was set up in 1981to provide professional IT training to students and professionals interested in the Indian IT industry. Currently it also provides domain training in fields such as banking, finance and insurance. NIIT has also introduced Yuva Jyoti, a joint venture between NIIT and NSDC, which offers vocational skills training programmes to enhance employability of youth across India (NIIT 2014).
- Looking back at the Indian training companies in the field of IT, it seems that they have done significant work in terms of creating computer awareness at multiple levels in different strata of the society and literally in

every part of the country. Being autonomous agencies, these training centres are able to adopt quickly and offer courses in new and proprietary technologies (Agrawal and Rao 2002). However, due to absence of regulatory authority, unscrupulous operators have also entered the training field in a big way and have deceived the public by charging high fees and giving false hopes of highly attractive jobs following the training. The franchise system has helped in the faster growth of the training industry. However, it has also led to a dilution of quality standards. The course design and the course content of many of these programmes are quite good. But many of these training centres do not have adequate infrastructure and faculty. It seems that the corporate and private training centres will continue to play a significant complimentary role for providing human capital for the growth of Indian software and IT industry. However, the training industry should proactively develop certain professional norms which will make it difficult for unscrupulous agencies to enter into the field. Further, the industry should avoid the temptation of over selling training programmes to people who do not have the basic competencies to meet course requirements (Agrawal and Rao 2002).

These initiatives by the Indian IT industry, national academic institutes, the Government and its agencies, NASSCOM, NSDC and private training institutes have been able to sharpen the competencies of fresh graduates aspiring to join the Indian IT/ITeS industry. It has in turn lead to an increase in their employability and has also contributed towards the manpower need of the IT industry. Table 1 provides a summary of the steps taken by IT organisations, National academic institutions, NASSCOM, the Government and NSDC.

IT Organisations	Providing finishing school/practical training to fresh graduates Adopting engineering colleges and providing faculty support Shaping the curriculum by sharing IT industry practices with academia Providing soft skill training Initiating sandwich programmes combining work and advanced technical knowledge
National Academic Institutes	Audio-visual training programmes for self-learning Online web and video courses on advanced technology Need-based postgraduate programmes with a focus on research and knowledge creation Employability-enhancing courses for engineering students from socially-disadvantaged sections of society
NASSCOM	Defining competencies of various job positions to assist the training providers Entrepreneurial support to young engineers Facilitating interactions between industry , academia and government to build workforce capacity
Government	Setting up IIITs to provide superior education Started CDAC to provide finishing school and advanced e-learning
NSDC	Coordination between industry, government, and training agencies to define and build the competencies required Developing standards and an accreditation system for quality training Involving large organisations in capacity building by training manpower
Private Training Centres	Providing on-the-job training Running skill development institutes Financially supporting non-profit organisations and social businesses in the delivery of training Providing accreditation

Table 1: Initiatives taken by various agencies/organisations to enhance the employability of young graduates in the Indian IT industry. Source: Compiled by authors

In the following section a model has been developed based on the case study of Indian IT/ITeS Industry as discussed above. It focuses on similar attempts that should be made by other industry sectors to enhance the human capital for sustaining their growth. The model highlights the initiatives which need to be taken by academic institutions, government and its agencies, corporations and private institutions to enhance the employability of the young graduates.

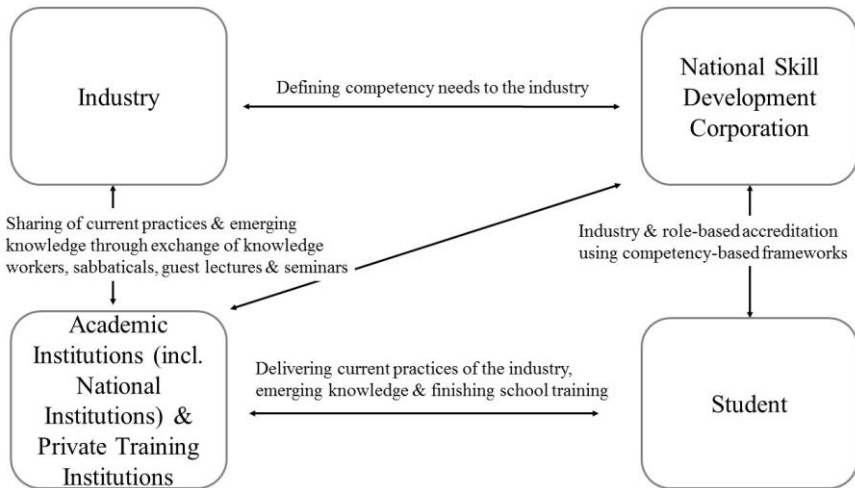## 10   A Proposed Model to Reduce the Employability Gap

Based on the analysis of the initiatives taken by the Indian IT industry and various stakeholders associated with the industry for upgrading the skills and competencies of fresh graduates, we propose below a model to reduce the employability gap for the fresh graduates aspiring for employment. The model focuses on enhancing

the quality of higher education by improving the quality of collaboration between industry, academic institutions, industry associations, government and government agencies, NSDC and other agencies. This model is represented in Figure 1 and it is discussed below.

10.1   *Effective Collaboration between Industry and Academic Institutions*

Industry leaders and academic institutions should collaborate on a continuous basis and be prepared to learn from each other. Industry should share emerging knowledge and work practices with the faculty and academic institutions so that these practices could be imbibed into academic curriculum. Academic institutions should also invite industry leaders to open Centres of Excellence on their campuses which will provide opportunities for the students to interact with the researchers and industry leaders on a regular basis.

Academic institutions should encourage its faculty to go on a sabbatical to an organisation of their choice. Similarly, organisations should nurture the culture of sabbatical and encourage executives to spend a few months being part of an academic institution. Organisations should also adopt an academic institution and depute their executives on a regular basis to teach a course or deliver guest lectures. Such interactions will facilitate transfer of knowledge and expedite the rate of learning for industry as well as academia. It will also create opportunities for organisations to discuss their problems and challenges with the academic institutions and jointly work along with them. The collaboration between industry and academic institutions would be a win-win situation for both.

Note: The government provides an enabling environment through tax incentives to the industry & funding for academic institutions & NSDC.

Figure 1: A model for enhancing the quality of education and learning to reduce the employability gap for higher education students. Source: Authors

10.2   Role of the National Skill Development Corporation

The NSDC has been created to develop linkages between industry, academic institutions and training institutions, and student community. The NSDC is expected to understand the knowledge, skills and competencies need of an industry sector by interacting with them on a regular basis. Further, the NSDC should share the knowledge, skills and competencies needs of an industry with academic institutions and training institutions. A superior understanding of the knowledge, skills and competencies needs of the industry will help academic institutions to revise their curriculums and deliver what is required by the industry. The NSDC is expected to interact with students and develop institutions and mechanisms to examine and certify students about their having necessary knowledge, skills and competencies for a given role and for a given industry. A third party certification of competencies makes it easier for the industry to get the right manpower (Sarkar 2013). The NSDC is thus expected to be a strong link between industry, academic institutions and training and certification agencies and ensure that students meet

the needs of the industry. The NSDC will provide funding and incentives for private sector initiatives for skill development. NSDC skill development funding takes the form of a loan or equity (NSDC 2014) (see chapter 13).

10.3   Government – Developing an Ecosystem

If the Government is to achieve its skill development goal, policy makers need to strengthen the ecosystem by supporting the labour laws, the Minimum Wages Act and the Apprenticeship Act (Business Standard 2014). The Government has been working towards strengthening its role as a coordinator between different agencies which are working towards skill development in India. The Central Government and state governments in collaboration with private companies have plans to set up Centres of Excellence which would focus on delivering emerging skill needs of the country. Each Centre of Excellence would have the latest hardware and software and be staffed with individuals from private companies. Through such programmes the Government will be supporting focused skill development within the country (Siemens India 2013). As an example, Siemens Industry Software signed a memorandum of understanding with the Ministry of Industries and Mines, Government of Gujarat for establishment of five Centres of Excellence for automotive, industrial machinery, industrial automation, aerospace, defence and ship building industry. The new government has taken its first step by announcing a separate Ministry, which will promote entrepreneurship and skill development in the country (The Economic Times 2014). The finance minister has also proposed a national multi-skill programme called Skill India which would skill the youth with an emphasis on employability and entrepreneur skills and the convergence of various schemes to attain this objective (India Today 2014). Though the new government has announced its vision of 'Skilled and Digital' India, proper implementation of these schemes would be crucial in order to attain the objectives.

11   Conclusion

The Government, industry, academia and the other stakeholders should work in collaboration with each other to improve the quality of education and reduce the employability gap. Industries should work in collaboration with NSDC to define the competencies required for productive employment. Academic institutions should interact and collaborate with the industries to know about the current technological practices and their work related challenges to redefine the curriculum on a continuous basis. An effective collaboration and willingness to learn from each other amongst the various stakeholders responsible for education and employment

will go a long way in bridging the gap between education and employability and help the country to benefit from its unique demographic advantages.

References

Agrawal, N. M., Khatri, N. and Srinivasan, R. (2012): Managing Growth: Human Resource Management Challenges Facing the Indian Software Industry. In: Journal of World Business. Vol. 47, No. 2, pp. 159-166.

Agrawal, N. M. and Rao, M. R. (2002): Developing Human Capital for Sustaining the Growth of Indian Software Industry. IIM Bangalore Research Paper No. 199.

Agrawal, N. M. and Thite, M. (2006): Nature and Importance of Soft Skills in Software Project Leaders. In: Asia Pacific Management Review. Vol. 11, No. 2, pp. 405-413.

Aurora, F. and Dhingra, I. S. (2009): India's Investment Climate: Voices of Indian Business. URL: https://openknowledge.worldbank.org/bitstream/handle/10986/6302/468280PUB0IN0I101OFFI-CIAL0USE0ONLY1.pdf?sequence=1.

Business Standard (2014): Empower NSDC, SSCs, State Skill Missions to Promote Skill Development: FICCI-KPMG. URL: http://www.business-standard.com/content/b2b-manufacturing-industry/empower-nsdc-sscs-state-skill-missions-to-promote-skill-development-ficci-kpmg-114090600307_1.html.

Chenoy, D. (2012): Skill Development in India: A Transformation in the Making. Indian Infrastructure Report.

CISCO (2014): Cisco Networking Academy. URL: http://www.cisco.com/web/learning/netacad/index.html.

Deshpande, P. (2014): How IIT Bombay's Spoken Tutorials Initiative Could Transform Indian Education. URL: http://www.informationweek.in/informationweek/perspective/295532/iitbombay-spoken-tutorials-initiative-transform-indian-education.

Doke, R. and Williams, S. (1999): Knowledge and Skill Requirements for Information Systems Professionals: an Exploratory Study. In: Journal of Information Systems Education. Vol. 10, No. 1, pp. 10-18.

Gautam. B., Chopra, K. L., Jha, C. S. and Singh, D. V. (2010): Profile of Engineering Education in India: Status, Concerns and Recommendations. New Delhi: Narosa Publishing House.

Gokuladas, V. K. (2010): Technical and Non-technical Education and the Employability of Engineering Graduates: an Indian Case Study. In: International Journal of Training and Development. Vol. 14, No. 2, pp. 130-143.

Government of India (GoI) (2008): Annual Report 2008. New Delhi: Ministry of Human Resource Development.URL: http://mhrd.gov.in/documents_reports?field_documents_reports_category_tid=9.[1]

Government of India (2009): National policy on skill development. Government of India Policy.

India Today (2014): Union Budget 2014-15 Talks of Digital India, Skill India and Smart Cities. URL: http://indiatoday.intoday.in/story/union-budget-union-budget-2014-15-talks-of-digital-india-skill-india-and-smart-cities/1/370734.html.

Infosys (2008): Sustainability Report. URL: http://www.infosys.com/sustainability/Documents/infosys-sustainability-report-0809.pdf.

Infosys (2014): Campus Connect. URL: http://campusconnect.infosys.com/WhatWeDo.aspx.

---

[1] Ministry of Human Resource Development (MHRD) (2008). Annual Report 2008. URL: http://mhrd.gov.in/documents_reports?field_documents_reports_category_tid=9 dated.

International Labour Organisation (2011): Labour Market Performance and the Challenges of Creating Employment in India. Paper Presented at the Expert Group Meeting on "The Challenges of Building Employment for a Sustainable Recovery".

NASSCOM and McKinsey (2005): NASSCOM and McKinsey Report 2005: Extending India's Leadership of the Global IT and BPO Industries. New Delhi: NASSCOM and McKinsey.

NASSCOM (2012): The IT BPO Sector in India. NASSCOM Strategic Review. URL: http://connect.nasscom.in/sites/default/files/researchreports/Exec%20Summary_0.pdf.

NASSCOM (2014a): Assessment of Competence NAC. URL: http://nac.nasscom.in/.

NASSCOM (2014b): NASSCOM's Top 10 Transformational Initiatives. URL: http://www.nasscom.in/nasscom%E2%80%99s-top-10-transformational-initiatives?fg=173878.

National Programme on Technology Enhanced Learning NPTEL (2014). URL: http://nptel.ac.in/.

National Skill Development Corporation NSDC (2014): Advocacy. URL: http://www.nsdcindia.org/advocacy.

NIIT (2014): Yuva Jyoti. URL: http://www.niityuvajyoti.com/Index.aspx.

Rani, S. M. E. (2010): Need and Importance of Soft Skills in Students. In: Journal of Literature, Culture and Media Studies. Vol. 2, No. 3, pp. 1-6.

Rege, P. (2014): Skilled Techie. URL: http://www.dnaindia.com/academy/report-skilled-techie-2002084.

Sarkar, P. (2013): Sustainable Skill Development Institutional Mechanism in India: Perspective and Prospects. In: Agrawal, N. M., Jomon, M. G., Varkkey, B. and Banerjee, C. (Eds.). Inclusiveness, Sustainability and Human Resource Development. New Delhi: McGraw Hill Education, Professional. Pp. 26-29.

Siemens India (2013): Siemens to Drive Skill Up-gradation across Industries in India. URL: http://www.siemens.co.in/en/news_press/index/siemens-to-drive-skill-up-gradation.htm.

The Economic Times (2014): Budget 2014: Meet Sarbananda Sonowal, the Rs 25,000-crore Man Who Will Skill India's Workforce. URL: http://articles.economictimes.indiatimes.com/2014-07-05/news/51092099_1_prime-minister-narendra-modi-ministry-workforce.

This Week Bangalore (2014): Samsung & IIIT-B Collaborate on Academic & Research Initiative. URL: http://www.thisweekbangalore.com/samsung-iiit-b-collaborate-on-academic-research-initiative/.

Viswanadhan, K. G. (2005): Assessment of Quality of Undergraduate Engineering Programmes in India. Bangalore: Indian Institute of Science.

World Bank (2000): Scientific and Technical Manpower Development in India. URL: http://documents.worldbank.org/curated/en/2000/08/693177/india-scientific-technical-manpower-development-india.

World Bank (2008): Implementation Completion and Results Report (IDA-37180). URL: http://www.npiu.nic.in/pdf/TEQIP_ICR.pdf.

Socio-Economic Impact of VET: Are Students Interested in Joining Vocational Education and Training in India – In the Context of Skilling Mission in India

Tutan Ahmed

1   Introduction

In this work – we try to understand the social desirability of vocational education and training (henceforth VET) in India. In general, it is observed that choice of VET often is a 'second choice' and also there is a global decline in the participation in VET. India always has a very low participation in formal VET. There is a recent attempt to enhance participation in formal VET through the expansion of VET institutions. Given the global perception and trend around VET, it is crucial to understand whether the mission of skilling in India is going to be successful. The first obstacle among many obstacles towards the success of this mission could be lack of social desirability around VET. This work is an attempt to understand whether the lack of social desirability is the reason of low participation in formal VET in India. If there is a social undesirability attached with VET in India – success of the skilling mission would be in question.

2   Empirical Social Background of Participants in Formal Vocational Education and Training

In the following section, we observe that the participation in formal VET is extremely low in India. At the same time, access to higher education is quite low when it is compared with the total participation in education in India. We further observe that VET in India is quite intricately linked with higher education (see chapter 6). Individuals with VET degree are also likely to have higher education degree. Somewhere else author has explained that people join VET mostly after they complete graduate and above education or after few years of labour market experience (Ahmed et al., forthcoming). It appears that in Indian context, VET and general education don't have a substitutive relation. It is observed that the cost of VET is quite high and there is a massive growth of private VET institutions. We also observe that it is only from the highest income (consumption) group in India

from where the participation is highest in VET. We argue that formal VET in India is as good as a form of higher education and it is the relatively privileged groups in society who end up participating in formal VET.

By no means, it appears that participation in formal VET has any undesirability attached with it when the big picture of Indian education and family income landscape is considered. However, a more nuanced picture would have been possible if we could have access to education performance data for the VET participants and non-VET participants. Broadly, we have concluded from the article that VET is quite desired in the society and people are ready to spend money for it. We argued this in two ways. First, a group of students who join formal VET – joins much later in their career. In this case, VET appears to be a matter of second choice. On the other hand, a large fraction of students simply don't have access to formal VET in India. We explain this participation pattern and "Social Desirability" in the next sections.

3   Access to Vocational Education and Training vis-à-vis General Education – The Global Context

From various countries around the World, it has been observed that VET assumes a position inferior to general education (Dronkers 1993; Rosenbaum et al. 1990; Shavit and Muller 2000; Duru-Bellat 1996; Clark 1960; Oakes 1985; Nilsson 2010; Vanfossen et al. 1987; Kariya 1999). It has been observed that VET is accessed by individuals from working class parental background, poor family, or with inferior academic background. In France, Scotland, Japan; the Netherlands; the United States it is observed by Duru-Bellat (1996), Croxford (1994), Kariya (1999), Dronker (1993), Clark (1960). Kariya (1999) has explained that VET can be explained as the "second choice" in Japan. Clark (1960) has explained VET as an avenue for "cooling down" of aspiration.

Whereas there is an existing inferiority of VET vis-à-vis General Education, there is also a dynamic aspect of this relationship observed globally which suggests a trend that goes against VET. We describe this in detail in the next section.

4   Current Dynamics between Vocational Education and Training and General Education – Global Context

It has been observed in different countries that there is a tendency of growth in participation in general higher education. This growth seems to be accompanied by a substitution of VET. It is suggested in the UNESCO handbook (2011) that

despite the growth of global gross enrolment ratio (GER) for upper secondary education since 1999, there has been a decline in the enrolment in VET programs as a percentage of enrolment in secondary education (except Sub-Saharan Africa).

In Arab states, there is a decline in the percentage of enrolment in VET programs from 34% to 20% at the upper secondary level during the period 1999-2009. During the same time period, the decline is from 43% to 38% in East Asia and Pacific region. The decline is from 31% to 26% in North America and Western Europe. There is an increase from 9% to 16% in enrolment in TVET in Sub Saharan Africa.

Similar phenomena come out when we look at the situation of individual countries. Countries like Germany, South Korea, and Australia have excelled in developing their VET systems. However, the trend of decline in participation in VET is also quite prominent in these countries (Thelen 2004; Deissinger and Hellwig 2005; Nakamura 2003; Kuczera et al. 2009).

The issue at hand here is, given this global situation how logical is it to continue investment in VET. Is there any assurance that students will continue to participate in formal VET – where the investment is growing quite rapidly.

5   Formal Vocational Education in India

It can be observed that the distribution of VET training among the population in India using 68th round of National Sample Survey Organisation (henceforth NSSO) data (2011-12) is only 3.07% of the population in the age group of 15 to 59 years either have formal VET or are undergoing formal VET training. This proportion of participation in formal VET is quite low in India as compared to other countries. Whereas from the above description we could observe that Arab States have 20%, Sub-Saharan Africa has 16%, East Asia and Pacific has 38% and North America and Europe has 26% of their upper secondary enrolment goes into formal VET, in India it is only 3% of the total population in 15-59 year age group who have any kind of formal VET. It is crucial to understand whether this low participation in formal VET in India is due to a lack of 'social desirability' of VET as opposed to high demand of general education.

In the following section, we have described the access to general education India. We observe that only a fraction of total educated manpower base has higher education. This has an implication on participation in formal VET. We observe in the next section that dominantly students with higher education background participate in formal VET.

6   Access to Formal Education in India

We provide below (Table 1) the extent of education for the population in India using 68th round NSSO data (figures are adjusted to 1st January, 2012 using CEN-SUS 2011). We could observe that in India, only 5.7% (4.32 + 1.39%) population has graduate and above level of education and only 22.6% (9.85 + 6.2 + 8.8 + 4.32 + 1.39%) have secondary or above level of education in India. We would observe from the next section that most of the VET courses require a minimum of secondary education as entry criteria. Thus, a very select few among the large Indian population can access VET.

Thus, 77.4% (100 - 22.6%) of the population possibly don't have access to VET. Even when the minimum entry criteria for VET is secondary education, we would observe in the next section that most of the participants join VET after attaining substantial level of higher education – much beyond what is stipulated as an entry requirement for a VET course. In the next section, we would explore this phenomenon while explaining the intricate linkage between different types of formal VET and general higher education.

68th Round	Absolute Number of Population	Percentage	Cumulative
Illiterate	387,321,915	31.7	31.7
Below Primary	220,312,683	18	49.73
Primary	169,819,500	13.9	63.63
Middle	167,857,539	13.74	77.36
Secondary	120,333,022	9.85	87.21
Higher Secondary	75,812,388	6.2	93.42
Diploma/ Certificate	10,740,856	0.88	94.29
Graduate	52,795,196	4.32	98.61
Post-Graduate	16,925,255	1.39	100
Total	1,221,918,354		

Table 1: Access to General Education in India. Source*:* Author's own estimation using 68th round unit level NSSO data (2011-12)

7   Structural Position of Vocational Education and Training in India

Structurally different VET courses are located at different places along the spectrum of general education. Tailoring, Handloom, Tool Room/Small Industry Development Centre and Driving require no or a minimum education. Courses like Community polytechnic, Catering require a minimum VIIth level of education. Industrial Training Institute (ITI), Polytechnic, Vocational High School – etc. standalone courses require a minimum secondary education (see chapter 3, 4 and 5). Diploma in Pharmacy, National Open Schooling etc. standalone courses require a minimum of class XII level of education. Nursing, Fashion Technology,

Hospitality, Secretarial Practice etc. courses are spanned across secondary and above level – as a parallel to general education.

However, if we look at the participation pattern, it could be seen (Table 2) quite clearly that in all the courses the participation dominantly take place from the higher secondary and above level. Mean level of education for most of the courses is 12 years or more. Only for handloom or motor driving – the mean years of education is below ten years.

Training centre	No of Ob-servation	Mean	Std. Dev.	Min Years of Education[1]	Max Years of Education[2]
ITI	796,627	12.7	2.3	2	17
Vocational High	203,386	12.3	2.5	4	17
UGC Level 1	173,926	14.1	2.4	8	17
Polytechnic	241,840	12.8	1.8	4	17
Community Polytech-nic	80,709	11.8	3.5	2	17
National Open School	3,245	13.7	1.9	12	17
Hotel Management	20,063	12.6	1.9	10	17
Food & catering	12,906	11.3	1.4	8	12
Small Industry Service	66,120	11.8	3.2	0	17
Fashion Technology	48,847	12.4	1.7	8	16
Tailoring	164,553	10.2	3.2	0	17
Nursing	87,710	12.8	1.9	10	17
Rehabilitation/ Physio-therapy	5,340	12.2	0.6	12	16
Diploma in Pharmaceu-ticals	18,230	14.2	2.9	8	17
Hospital/ Medical Training	132,967	13.8	2.0	10	17
Nursery Teacher Train-ing	46,168	13.9	2.7	8	17
Agriculture	3,358	13.8	2.7	10	17
Handloom	5,104	9.2	3.2	0	13
Motor Driving	147,580	9.6	3.8	2	16
Secretariat	6,437	15.4	1.6	12	17
Beautician	49,671	14.4	3.2	2	17
Company/Municipality Run Training	91,176	14.1	3.6	4	17
Journalism	12,831	13.0	2.0	10	16
Others	1,012,679	13.1	3.0	0	17

Table 2: Descriptive Statistics for Years of General Education by the Individuals currently enrolled in VET. Source: NSSO 66th Round (2009-10) Unit Level Data[3] (Author's calculation)

---

1 Some of the information about minimum years of education of people who have participated in ITI or Polytechnic is surprisingly quite low. Further investigation reveals that in some of the states – there are provisions for some of the workers in the industry, who are working for long time to join ITI or Polytechnic. However, this provision is gradually abolished in most of the states. For example, in West Bengal used to exist a decade back.

2 Years of Education is calculated by converting level of education into years. Someone having primary education has four years of education. Someone with secondary education is considered to have ten years of education. Someone with post graduate is considered to have 17 years of education (12 years for higher secondary + three years for graduates + two years of post-graduate).

3 We use NSSO 66th round data here since this classification of different types of VET is provided in this round but not in 68th round.

For ITI it is 12.7 years of mean education, for polytechnic it is 12.8 years of mean education, for vocational high school it is 12.4 years of mean education. Entry criteria for all these courses are a minimum of ten years of education.

Diploma in pharmacy and National Open Schooling courses has a requirement of 12 years of general education. The mean years of schooling for these courses are 14.2 years and 13.7 years. In rest of the trainings we can see similar picture as well. Thus, whereas some of the VET courses are structurally related with higher education, participation in these courses is dominantly taking place from the higher education category.

Thus, whereas people from higher education are coming to the fold of VET – we further need to look at the cost of VET, family background of the individuals in order to understand whether VET is a matter of privilege or an outlet for "cooling down" of aspiration as famously coined by Clark (1960). Following sections explain these aspects.

8   Descriptive Statistics of Age of the Participants (Enrolled at Present)

Further, we have plotted the age of the participants in the formal VET who are enrolled at present in VET institutions. Interestingly, it could be observed that the mean age of the individuals is quite high. Mean age for the participants in the ITI is 26.5 years, for Polytechnic students it is 24.7 years. For students in Tailoring, Nursing, Nursery Teacher's Training, Beautician, Company/Municipality run training institute – everywhere we can observe that the mean age of the participants is more than 25. In fact, in trades of Motor Driving, Handloom, Agriculture, Diploma in Pharmacy – in all these trades the average age of all the currently enrolled students is more than 30 years. Finally, there is not a single trade where the average age of the participants is less than 21 years.

This table on age and the table on education level of the currently enrolled students indicate that the participants in VET join these courses much later than the stipulated age or stipulated education. For the participants – it is likely that joining VET is not the first option. They joined VET only much later age after higher education or after some experience in the labour market. This way, we can argue that for the VET participants this choice of VET is a 'Second choice'.

Training centre	No. of Observations	Mean	Std. Dev.	Min	Max
ITI	796,627	26.5	10.6	15	59
Vocational High	203,386	23.2	8.4	15	55
UGC [4]Level 1	173,926	24.7	7.2	15	59
Polytechnic	241,840	23.7	7.3	15	52
Community Polytechnic	80,709	25.3	8.1	15	56
National Open School	3,245	23.6	2.3	21	27
Hotel Management	3,245	23.6	2.3	21	27
Food & catering	12,906	21.3	5.3	18	38
Small Industry Service	66,120	28.1	8.7	19	47
Fashion Technology	48,847	21.3	3.8	16	38
Tailoring	164,553	26.0	7.5	15	47
Nursing	87,710	26.5	9.2	16	51
Rehabilitation/ Physiotherapy	5,340	21.9	1.7	18	27
Diploma in Pharmaceuticals	18,230	30.5	9.1	18	49
Hospital/ Medical Training	132,967	28.8	8.9	18	58
Nursery Teacher Training	46,168	27.1	9.2	18	59
Agriculture	3,358	33.5	11.4	20	55
Handloom	5,104	33.9	11.8	24	54
Motor Driving	147,580	36.9	10.5	19	58
Secretariat	6,437	31.2	10.7	18	56
Beautician	49,671	29.4	8.3	16	45
Company/Municipality Run Training	91,176	26.5	7.2	16	50
Journalism	12,831	22.1	1.3	18	25

Table 3: Age of Distribution of the Students who are currently enrolled in VET: Source*:* NSSO 66th Round (2009-10) Unit Level Data (Author's calculation)

9 Expenditure for Vocational and Educational Training in India

Let us look at expenditure pattern in vocational education. Apart from 64th round NSSO, conducted in 2007-08, there is no nation-wide survey on VET expenditure in India. This one time data is quite telling about income background of the students and their choice of education.

We obtain important information regarding cost of education in general and cost of VET in particular. From this survey, we also obtain the income background (by the use of consumption proxy) of the individuals who participate in different types of education. It provides us crucial information about the income background of the individuals who participate in the formal VET.

64th round survey (2007-08) provides estimates of private expenditure on education. In 2007-08, for General education at primary level – annual average

4 UGC stands for University Grant Commission

private expenditure per head is Rs. 1,413 for Middle education – it is Rs. 2,088 for Secondary/ for Higher Secondary level education – it is Rs. 4,351 and graduate and above level it is Rs. 7,360. On the other hand, private expenditure for VET is Rs. 14,881, which is substantially higher than all other general education. Highest expenditure is incurred in technical education. Annual average expenditure per head for technical education is Rs. 32,112, which is substantially higher than all other categories.
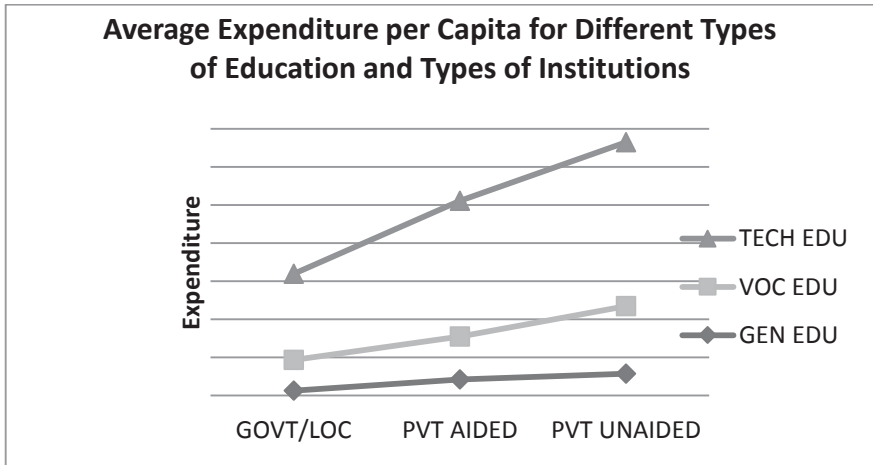

Figure 1: Average expenditure for different types of education[5]. Source: Authors compilation from (2007-08) 64th Round NSSO data

However, there are two categories of VET in India. Namely government sponsored and the private VET training programs. Fee structure for the government VET is much lower than the fee structure of the private VET training programs. It is observed in the 64th round that the fees in government VET is almost half the fees in private VET. It is also observed that the average overall fee for VET is close to the average private expenditure – indicating a strong presence of private VET institutions in India. It shows that student's participation in private training schools is much higher than their participation in the government training institute. This is true invariably for rural, urban and respective male, female group. Thus, in

---

5 Govt/ Loc represent schools which government or local bodies run where students aren't required to pay. Private aided schools are those which are run by private bodies and may partially be funded by government. Private unaided schools are those which are solely responsible for generating their own revenue.

India, people dominantly participate in Private VET which is quite costly. It requires us to look further into the family income background of the participants in VET.

10 Income (Consumption) Background of the Vocational Education Training Participants

As mentioned before, 64th round survey has also covered the income level of the participants. Monthly per capita expenditure (MPCE) is adopted as the proxy variable for income.

The table on MPCE of the participants in VET is presented below. The figures in the cells represent the number of persons out of 1,000 persons in that particular consumption category participating in the formal VET. This population is divided into male/female and rural/urban and then the calculation is made. MPCE categories are divided into deciles. There are ten deciles for the MPCE categories. The first decile indicates the lowest 10% in the income group and the 10th decile indicates the highest income group.

It can be found that with higher decile class of MPCE – there is an invariable growth in the number of participants in VET. It shows that the likelihood of participation increases with higher level of income (consumption) background. It shows that it is the relatively well-off income groups have access to VET.

MPCE DECILE	RURAL	RURAL	RURAL	URBAN	URBAN	URBAN
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
0 to 10	1	0	1	2	2	2
10 to 20	1	0	1	4	1	3
20 to 30	1	0	1	5	1	3
30 to 40	1	1	1	8	3	5
40 to 50	3	0	2	14	3	9
50 to 60	2	1	1	12	3	8
60 to 70	4	1	3	17	7	12
70 to 80	6	2	4	25	10	18
80 to 90	7	3	5	10	13	24
90 to 100	25	11	18	50	19	35

Table 4: Income Group and Participation in VET. Source: NSSO 64th Round data (2007-08)

High cost associated with a course doesn't necessarily mean that only people with a rich family background would join that course. Duru-Bellat (1996) has argued that often students with good academic performance but belonging to poor family can join a course which is costly. Family may decide to make the investment for one good performing child at the expense of other not so well performing children in the family. However, we don't have data for academic performances of the students. Hence, in this work it would be difficult to explore this dimension of academic performance and participation decision in VET. However, other indicators would suggest that there is a growth in the participation in private VET institutions. This indicates the demand for Private VET institution despite the high cost associated. These are elaborated in the next section.

11   Participation in Private and Public Vocational Education and Training Institutions

The recent growth of formal VET, particularly private VET institutions in India is well known (see other chapters). However, growth of institutions doesn't automatically mean that there is a growth of participation into these institutions. World Bank (2008), Gasskov et al. (2003) reports suggest the scenario of empty classrooms so far as VET institutions are concerned. We have observed below that there is growth in the participation in the private VET institutions as compared to the participation in the government VET institutions.

It could be observed that in both terms of percentages and in terms of absolute number, there is a growth of participants in the private VET institutions. It could also be observed that there is a growth of VET participants in the private category when it comes to 'Receiving' category of VET over the 'Received' category of VET. It can be observed that in 66th round participation in Private VET from the 'Receiving' category is 58.3% and from the 'Received' category it is 52.6%. In 68th round it could be observed that participation in Private VET from the 'Receiving' category is 60.4% and private participation from the 'Received' category VET is 52.6%. Thus, clearly from the 'Receiving' category there is a higher participation in Private formal VET. In fact, it can also be observed that with time, there is a growth in the private participation in VET.

66th Round		Government	Local Body	Private Aided	Private Unaided
	Receiving VET	39.9	1.7	21.6	36.7
	Received VET	44.5	2.9	30.3	22.3
68th Round					
	Receiving VET	39.9	1.7	21.6	36.7
	Received VET	44.5	2.9	30.3	22.3

Table 5: Participation in Private and Public VET (in percentage). Source: 66th and 68th Round NSSO data (author's calculation)

66th Round		Government	Local Body	Private Aided	Private Unaided
	Receiving VET	776,581	33,428	421,010	715,006
	Received VET	587,114	38,694	399,295	293,633
68th Round					
	Receiving VET	1,081,924	23,447	658,154	1,065,532
	Received VET	507,445	33,443	345,112	253,788

Table 6: Participation in Private and Public VET (in absolute number). Source: 66th and 68th Round NSSO data (author's calculation)

All these figures are adjusted to CENSUS 2011. It is to be noted that all the VET participants didn't report their types of institution.

12   Conclusion

Few observations come out from the above illustrations which lead us to weave a picture about participation situation in VET in India. We could observe that VET is intricately related with higher education so far as participation is concerned. Structurally, all the VET courses may not be close to higher education except some courses. Most of the people join VET after completion of substantial higher education. Thus, so far as participation in formal VET is concerned, the connection between VET and higher education is quite strong.

Like other countries, in India – cost of VET is quite high. It is particularly true for the private VET institutions. Landscape of Indian VET is dominated by the private institutions and the fees in Private VET are much higher than the fees in government VET institutions. We also see that participation in VET is dominantly taking place from the family with better economic background. Thus, it appears that students in VET are dominantly from families with better income background as compared to the overall income scenario in India. Whereas, VET

in India is quite close to higher education, it appears that only the relatively opulent population can access it.

Looking at the educational background of the participants – it appears that VET is a case of 'second choice' where the participants are overqualified to join VET. However, this is limited only to a fraction of the total student base. A large fraction of Indian students are not able to reach to the gateway of VET. It is also likely that most of them are unable to get into VET due to high cost of it. So, whereas it could be a case of 'second choice' for a small section of the student base, a large mass of students are unable to access VET. Availability of academic merit data would have further facilitated this research on whether the poor performers in general education are participating in VET.

Finally, we could argue that how we perceive VET in India depends upon the perspective the onlooker has. If we look at it from a top down elitist perspective – it will appear that VET is a matter of 'second choice' in India. However, if we take a complete view of Indian education and its participants – it could be argued that VET is inaccessible for most of the Indian population.

References

Ahmed, T.; Abraham, B. and Chattopadhyay, R. (forthcoming): Participation in Vocational Education and Training in India: A Case of Downward Career Mobility. In: Indian Journal of Industrial Relation.

Clark, B. (1960): The "cooling-out" function in higher education. In: American Journal of Sociology. Vol. 65, No. 6, pp. 569–576.

Croxford, L. (1994): Equal opportunities in the secondary-school curriculum in Scotland, 1977-1991. In: British Educational Research Journal. Vol. 20, pp. 371-391.

Deissinger, T. and Hellwig, S. (2005): Apprenticeships in Germany: Modernizing the Dual System, Education and Training, Vol. 47. Pp. 312-324.

Dronkers, J. (1993): The precarious balance between general and vocational education in the Netherlands. In: European Journal of Education, Vol. 28, No. 2, pp. 197–207.

Duru-Bellat, M. (1996): Social inequalities in French secondary schools: from figures to theories. In: British Journal of Sociology of Education. Vol. 17, No. 3, pp. 341-350.

Gasskov, V.; Aggarwal, A.; Grover, A. and Kumar, A. (2003): Industrial Training Institute of India: The Efficiency Study Report. Geneva: ILO.

Kariya, T. (1999): Transition from school to work and career formation of Japanese high school students. In: Stern, D. and Wagner, D. A. (Eds.): International perspectives on the school-to-work-transition. New Jersey: Hampton Press, Inc. Pp. 273–309.

Kuczera M.; Kis V. and Wurzburg, G. (2009): Learning for Jobs, OECD Reviews of Vocational Education and Training, Korea. OECD.

Nakamura, T. (2003): Education Aspiration and the Warming-up/ Cooling-down Process: A Comparative Study between Japan and South Korea. In: Social Science Japan Journal. Vol. 6, pp. 199-220.

Nilsson, A. (2010): Vocational education and training – an engine for economic growth and a vehicle for social inclusion? In: International Journal of Training and Development. Vol. 14, No.4.

Oakes, J. (1985): Keeping track: How schools structure inequality. New Haven: Yale University Press.

Rosenbaum, J.; Kariya, T.; Settesten, R. and Maier, T. (1990): Market and Network Theories of the Transition from High School to Work: Their Application to Industrialized Societies. In: Annual Review of Sociology. Vol. 16, pp. 263-299.

Shavit Y. and Muller W. (2000): Vocational Secondary Education- where diversion & where safety net? In: European Societies. Vol. 2, No 1, pp. 29-50.

Thelen, K. (2004): How Institutions Evolve: The Political Economy of Skills in Germany, Britain, the United States, and Japan. Cambridge: Cambridge University Press.

UNESCO (2011): Global education digest 2011: comparing education statistics across the world. Montreal, Quebec, Canada: UNESCO Institute for Statistics.

Vanfossen, B.; Jones, J. and Spade, J. (1987): Curriculum tracking and status maintenance. In: Sociology of Education. Vol. 60, pp. 104-122.

World Bank (2008): Skill Development in India -The Vocational Education and Training in India. New Delhi.

A View from the Outside: India's School to Work Transition Challenge – Strengths and Weakness

Matthias Pilz

1   Introduction

School to work transition and the preparation for the world of work are highly important aspects in India's education and training policy (King 2012).

India has a huge potential which does not only manifest itself in the growing population and the huge number of youths who stream into the education and labour market system; its economic and geostrategic position at the interface between Asia and the Arab region is of high relevance for economic growth and future developments.

The concluding chapter takes up the issue of 'transition from school to work in India' in a comprehensive way. In order to structure the different aspects, it seems to be useful to take advantage of a popular approach in international educational governance theory (Gonon 2008), according to which three levels within an education system are differentiated. At the macro-level, elements of the education system are focalised in their entirety. Moreover, socio-cultural, economic, and other interdependencies are considered. At the meso-level, the focus is on the curriculum and individual institutions of the education system, whereas at the micro-level, the focus is on the specific teaching-learning process.

For each of these three levels, some particularly relevant aspects from the articles in this volume are selected and analysed in more detail in the subsections. These aspects will be dealt with in terms of the tension between strengths and weaknesses in order to map the spectrum of findings and tendencies in a comprehensive way. This method has already proven to be fruitful during other country analysis (cf. Pilz 2002, 2011).

Hence, the subsequent structure that evolves for our discussion comprises of the following subsections as highlighted in the table below (see tab. 1).

Macro-level	Educated versus uneducated population
	General versus vocational education
	Formal versus informal education
	Structure versus chaos of programmes
	Supply versus demand-driven approaches
	Public versus private (company and/or individual) financing
Meso-level	Adequate versus inappropriate curricula
	Short versus long duration of programmes
	Competent versus unqualified teachers/trainers
Micro-level	Theory-driven versus practical experience
	Teacher versus learner-centred approaches

Table 1: Three levels approach of discussion

2   Macro-Level Analysis

In the following paragraphs, the particularly relevant aspects will be analysed at the macro-level.

2.1   *Educated versus Uneducated Population*

At all levels, the Indian education system is characterised by outstanding educational institutions which excel in motivated and well-qualified teaching staff, great infrastructure, and, thus, brilliant learning and examination results of their students. However, these institutions usually demand high tuition fees which can only be afforded by a small part of the population. Moreover, there is a huge number of youths who either only attend some primary school or who leave before completing secondary school. In the article by S. Nayana Tara (see chapter 2), the situation of drop-outs and illiterates is documented in detail. For this section of the population, which makes up a big proportion of the total population, the transition from the education system to the labour market happens in a quite a diffuse and unorganised way. These youths generally start their working life in the informal sector where the predominant labour and income conditions are usually considerably worse compared to the formal sector (see chapter 10 and 12).

Several initiatives for the improvement of quality in low-fee paying schools and for increasing the motivation of pupils as well as of parents to send their children to school have shown to be successful (see chapter 7 and 12). However, such initiatives need to be further intensified so that the drop-out rate is reduced and the aim in education policy for pupils to complete at least class eight is achieved (see chapter 3). However this challenge can only be a lengthy process to be dealt with in the long run. It has to be taken into account that India is at once a

culturally heterogeneous country and a big country with a quantitative problem of high numbers of students.

2.2   General versus Vocational Education

The preceding chapters have clearly shown that education in India is associated in the first place with general education and, better still, with academic education. Parents of all social classes are prepared to invest lots of money in the education of their children to pave the way for them to preferably have a good professional career and social standing. Like in many Asian countries and in the Anglo-Saxon world, too, careers are primarily defined through the attendance of reputed education institutions in the general education sector (Shavit and Müller 2000; Müller and Shavit 1998). The special meaning assigned to final exams as well as to entrance tests in such institutions is manifested in the meritocracy logic to which each student has to submit (Goldthorpe 1997). In contrast to the prominent position enjoyed by general education, vocational education is of only minor importance and seen as marginal or even inferior. Especially participants of vocational training courses are stigmatized and often considered as education losers. The reasons for the low standing of vocational training courses in society and in the Indian labour market can be traced to several socio-cultural and historical factors. In addition to the widespread assumption prevalent in Asia that only the highest educational degrees contribute to a high social standing in society and provide the highest return of investment in education. In India, the historical development also plays an important role. It cannot be denied that the influence of the British colonial influence shaped the Indian education system significantly. Until today, academic education in India orients itself strongly towards the Anglo-Saxon model (see chapter 15) perpetuating even to this day the colonial legacy (Singh 2001).

        In addition, specifically in India, vocational education is usually associated with physical or rather craft work. So-called blue-collar jobs are not highly rated among the Indian population. Manual or rather physical work does not have a high reputation. The reason for this fact can be found in the caste system which traditionally assigns physical and dirty work to the lower castes (Singh 2001 and see chapter 4 and 15). In this respect, the tendency towards the increase in academisation through cultural and colonial influences together with factors relating to religious and social underpinnings has led to the deep-rooted image problems of vocational education. A general solution to this problem – also that more and more skilled workers are needed – is currently not foreseeable.

Partial approaches as, for example, the upgradation of ITIs through better equipment and higher teaching capacities (see chapter 4 and 13) could be one approach to reach a qualitative improvement of vocational education processes. In contrast to this state-driven approach, the initiatives for a stronger involvement of employers have been mostly without success (see chapter 8, 11 and 14).

The foundation of interest groups and associations for vocational education (Sector Skill Councils) (see chapter 13) did not lead to a stronger activation of employers in vocational education processes so far. Moreover, the present remuneration system shows that the value of vocational education on the labour market compared to academic education is estimated to be lower (see chapter 15). Lately, vocational education represents a dead end since a connection or linkage of vocational and general education does not exist in India. Thus, the change from vocational education courses into general education courses later is not possible.

Consequently, various interrelated problems areas arise and which deserve a holistic approach for a solution.

2.3   Formal versus Informal Education

The Indian education system and the transition from school to work cannot be adequately analysed without underlining the special role of the informal sector. Still, about 95% of the Indian population works in this sector (see chapter 10 and 12). Formal educational degrees and certificates only play a minor or even no role in this field. However, it needs to be taken into account that also in this sector a variety of skills are generated. Informal learning in particular plays a special role for the informal sector (see chapter 12). It is through informal learning that individuals learn complex and sector-specific knowledge and skills. (Pilz et al. 2015; Pilz and Wilmshöfer 2015). Hence, this sector should not per se be characterised as inferior or dispensable; on the contrary, the flexibility and the specific nature of informal learning should be made visible and recognised (Singh 2000) The development of a national skills qualification framework (NSQF) as well as first approaches for certification of informally acquired skills can represent an important future potential.

However, it can also be assumed that through increasing industrialisation, the share of the formal sector in the economy will grow and that consequently also the demand for formally qualified workers will rise. Therefore, the formalisation of the informal economy should be considered, especially at the interface between the formal and the informal sector without causing greater frictions or upheavals in the economic and labour system (see below).

2.4   Structure versus Chaos of Programmes

At first sight, the Indian education system is characterised by a clear and well-coordinated governance system (see figure 1 in the first chapter). The education institutions, the courses as well as the transitions and educational pathways are structured and clearly evident for all participants involved in education. Consequently, the Indian education system offers a great number of different educational careers.

However, as the articles by Mona Khare and Narendra M. Agrawal show the individual education institutions differ significantly at every education level. Thus, there are on the one hand high-quality schools in the bigger cities and on the other hand partially insufficiently-equipped schools in the rural areas. The coexistence of public and private education institutions intensifies this heterogeneity. The consequential lack of transparency is at least to some extent compensated by nationally-regulated final exams. Through the high importance of these exams (see paragraphs 2.1 and 2.2), boosting effects occur. Good schools can choose good students whereas bad schools get weaker students. This effect can be intensified once more through very different rates of tuition fees (see article by Venkatraman Badrinath).

A further aspect leading to an increasing chaos of programmes is the fact that every state enjoys autonomy in regard to education policy, as a result of which there is to some extent a very big difference in structures and rules between the different states. As a result national curricula often gets amended or replaced by state curricula. At the same time, different ministries at national and state levels act in parallel. Besides the Ministry of Higher Education, the Ministry of Human Resource Development, the Ministry of Labour & Employment, as well as the new Ministry of Skill Development & Entrepreneurship play an important role at national level. But also other ministries as, for example, the Ministry of Agriculture are engaged in education. This does not only lead to disputes over roles and responsibilities but also leads to duplication or even competing offers (see article by Ganapathy Palanithurai). The lack of transparency becomes further exacerbated by education providers from the private sector and NGOs providing manifold training offers (see chapter 7 and 10). The result of this, especially in the vocational education system, is a conglomeration of different degrees and qualifications which is quite difficult to understand for employers. Moreover, the individuals demanding education (students and their parents) are confronted with this lack of transparency.

It is therefore necessary to have a clear division of roles and responsibilities among individual ministries as well as between national and state levels. The standardisation of training programmes through stronger outcome orientation

could also mitigate this problem (see article by Vinay Swarup Mehrotra). In addition, there is the question of the implementation of the national qualification framework in India. If its acceptance in society, education and the labour market progresses well, this framework can also lead to a better structuring of educational provision and hence, to more transparency among training providers and individuals looking for training (see chapter 13 or Singh 2012).

2.5 *Supply versus Demand Driven Approaches*

In the last decades, the Indian Government at national and state level made impressive efforts to increase skills among the population. This applies to youths as well as to adults, especially in rural areas (see chapter 7, 11, 12 and 13). Through these efforts, a very high number of persons could already get involved in educational activities. However, the sustainability of learning success could not be documented for many of these actions. Besides the measurement problem, findings also point to another problem. A great number of the programmes have a clear supply-driven focus. Educational initiatives are planned at the national level and they are oriented towards governmental planning requirements. These supply approaches can be found in many countries worldwide and, thus, also in India (cf. e.g. Ziderman 2003; Mehrotra et al. 2013). Such approaches disregard the demands of the participants and those of the employers. The demand side is considered the key to success, especially in the context of further and continuing training (Billett 2000). A high participation rate in educational programmes along with the respective motivation of the individuals as well as the subsequent utilisation of the acquired skills in working life can be expected only if educational activities can be designed in a way that they meet the needs of the labour market as well as those of the individual participants (see chapter 9 and 15).

The development and delivery of supply-driven offers requires a rethink from all stakeholders involved in education. Qualification requirements (both inputs and outputs) have to be assessed prior to the development of training measures. They represent the basis for the development of educational programmes. Such additional expenditure seems to be rewarding if an improved sustainability of the education programmes can be achieved later on.

2.6 *Public versus Private (Company and/or Individual) Financing*

Financing of education systems plays a crucial role in all countries of the world. Thus it is not only a matter of the amount of financing but also the accompanying

engagement of stakeholders and their roles and responsibilities in the development of training courses. As already indicated several times above, the Indian education system is characterised by mixed financing. Besides a significant national financing, the individual or rather family financing of educational activities plays a great role in India. In this respect, it can be called a market-liberal system (Busemeyer and Trampusch 2012). Consequently, a private education sector has evolved in India which constitutes an integral part of the country's economic performance (see chapter 8 and 14). If education is considered an investment, then it is understandable that parents and students expect a return from the investment. From an economics of education perspective, this is achieved later through the income earned in the labour market system which takes the educational background appropriately into account. As the article by Narendra M. Agrawal et al. shows, the realisation of the returns of education, when compared internationally, is achieved by the fact that Indian employees show a lower level loyalty towards their employers and change their job very quickly if better payment is offered elsewhere. The high turnover is fostered by a liberal labour market which is determined through other factors (see chapter 14).

At this point, it is important to mention that the employers are usually not interested in larger investments in the training of their staff. Due to the high turnover, these investments are not considered to be profitable (poaching problem). Through the absence of employer commitment in training, only very limited financing possibilities of governmental bodies, as well as the focus of parents on general education courses, a skill gap arises at the middle qualification segment (see chapter 7). If the Indian formal sector continues to grow and industrial as well as service-oriented companies want to succeed on the global market, qualitatively competitive products can only be produced by an adequately trained workforce. Thus, a fundamental issue to be tackled in future will be, as Mehrotra et al. (2014) suggests, the development of public private partnerships in vocational training. The stronger involvement of employers in political issues of vocational education which is pushed by the government goes into the same direction. The implementation of sector skills councils is one initiative in this direction. However, many companies currently still do not seem to be convinced of a stronger engagement (see chapter 8).

3   Meso-Level Analysis

This section analyses the structural and curricular issues at the level of individual educational institutions including the related structural and curricular characteristics.

3.1   Adequate versus Inappropriate Curricula

The curricular framework conditions constitute for all education institutions a decisive guideline for their didactic-pedagogic action (Kelly 2004). On the one hand, there are modern and updated curricula in the field of secondary education in India. One example in this respect is the curriculum in the area of pre-vocational education (see chapter 3). Furthermore, in the field of vocational courses at general education schools great efforts have been made to introduce an attractive and modern learning environment (see chapter 9). On the other hand, especially in the field of the Apprenticeship Training Scheme (ATS) outdated curriculum from the 1960s is still used. Even in the area of ITI training, the number modern curriculum is still relatively limited (see chapter 4).

This leads to problems because young people who are trained in this manner do not have the skills profile that matches the requirements of the companies. This explains to some extent the reasons for the poor transition of ITI students onto the labour market (see chapter 13 and 15). With the help of appropriate institutions, which are specialised on curriculum development (like PSS Bhopal or Kolkata), it should be possible to put an end to this deplorable situation quite quickly. It should then be the task of the individual education institutions to see that their teaching staff has the appropriate qualifications to push the implementation of new curricula in the courses (see chapter 4).

3.2   Short versus Long Duration of Programmes

In the preceding chapters, particular attention was paid to education levels, wherein it was also pointed out that at each education level education programmes have certain duration. Thus secondary education is created to last over many years. Similarly, higher education also comprises studies over several years.

Vocational education courses, however, are offered for a duration lasting from few weeks to usually a maximum of two years (see chapter 3, 4, 5 and 6). How might comprehensive skills be taught and practiced in training measures when the course lasts only a few weeks, however? If comprehensive skills are to be learned, the training phases should be planned in a sufficiently long and intensive manner (see various articles in Fuller and Unwin 2013). It is not surprising when employers complain about the insufficient qualifications of young people who get trained in short-term training courses. It is interesting that in the informal sector, in which learning takes place mostly non-formally and informally, the learning process is created to last over several years until the professionalisation is completed (Pilz et al. 2015).

Therefore, in the long run, it is necessary to strive for the extension and standardisation of training periods also in the professional/vocational area. This applies primarily to the initial training of youths, where equivalencies with the general education system could be made. Such standardisation might be problematic and not sufficient enough for the informal sector. However, by means of informal apprenticeships (ILO 2011; Barber 2004) as well as a corresponding certification of the informally acquired skills, a special type of vocational education could be established at least to some extent for this central sector of the Indian economy.

For the field of further and continuing training (see chapter 11), however, other solutions have to be found oftentimes. Here, training programmes have to be designed in a flexible manner in order to enable the participants to receive an income besides the training measure.

3.3 Competent versus Unqualified Teachers/Trainers

It is known from international studies that teaching staff has a very crucial importance in an education system (Hattie 2009). Thus, special attention has to be paid to a high-quality training of teachers, to their selection, as well as to their appropriate salary. All in all, these requirements are met in the general school sector and especially in higher education in India (see chapter 6). Bigger problems especially occur in rural areas in which it is difficult for public schools to find well-qualified teaching staff due to low attractiveness (see chapter 9).

The situation in the field of vocational education is totally different. Whereas the quality of teaching staff at polytechnics and colleges can still be described as good to satisfactory (see chapter 5), the situation at ITIs is frequently precarious. If teaching staff and trainers themselves often only completed training at an ITI as highest educational degree, the training cannot meet high quality requirements (see chapter 4 and Mathur et al. 2014). At this point, training for vocational school teachers needs to be urgently implemented. This training has to include both, a professional qualification in the respective subject and an explicit didactic-pedagogic perspective. Usually, this can only be reached through studying at a university. To make the teaching profession more attractive, it will also be necessary to pay an appropriate salary to these well-qualified teachers.

4   Micro-Level Analysis

At the micro-level, the specific teaching-learning process will be the focus of analysis.

4.1   *Theory-Driven versus Practical Experience*

The courses with vocational focus have the task to prepare the learner for the daily life in the labour system. This includes comprehensive theoretical knowledge which, however, has to be applied in practical settings.

Nevertheless, the articles Vishal Gupta and K. Kumar impressively document that formally organised vocational learning in India is too strongly rooted in theory. Practical phases and learning with a practical orientation are not at all or only marginally taken into account. Against this background, employability cannot be achieved and, moreover, the needs of the labour market cannot be adequately met. Once more, the reason for this fact could be that theoretical education has a better image in India and that teachers in the field of vocational education do not consider practical-oriented teaching (e.g. directly on machines within the production process) as appropriate for their own social standing. In addition, the training of teachers oftentimes does not consider and promote practical orientation in an adequate way (see chapter 9).

Once more, this problem needs to be solved through a new form of training for vocational school teachers (cf. above). Vocational school teachers have to become aware through their training that the acquisition of knowledge, skills and broader competencies in vocational training courses can only be realised through direct interlinkage of theory and practice (Evans et al. 2006; Fuller and Unwin 2013), whereby the physical activity genuinely serves the organisation of the learning process and should not be considered as negative stigma.

4.2   *Teacher versus Learner-Centred Approaches*

In the Indian context the teaching-learning process is still characterised by a strong dominance of teaching staff (see chapter 9).

Teaching staff primarily consider themselves as lecturers and not as learning guides or moderators within the learning process. In this respect, existing reality contradicts the findings of teaching-learning research (Bransford et al. 2000). Only if it works in the medium term to focus teaching at all school levels and also in the vocational education sector much more on the learners and to integrate them more actively in the learning processes, only then all kinds of skills can

be enhanced appropriately besides the merely receptive knowledge. Enhancing problem-solving skills; understanding, confidence and motivation, fostering aspirations and self-esteem as well as communication and, social competence, and other kinds of skills can only be promoted by taking part in activities and through the individual's own actions. Here again, it is the quality of the training of teachers that is central: In the initial teacher training, modern pedagogical and didactical concepts have to be integrated. Also in further training, corresponding programmes need to be provided in order to reach out to the already active teaching staff within the education system. This suggestion could be formally flanked through a stronger curricular definition of teaching-learning methods (cf. above) and it can become mandatory in the context of quality management of education institutions.

5   Conclusions

The Indian education system faces huge challenges in order to adequately realise the transition from school to work as well as the preparation of youths for the world of work.

The presentation of the three-level analysis surely does not deal with all strengths and weaknesses in a comprehensive way. Nevertheless, it should have already become clear by means of the examples highlighted in this chapter (and the many other ones in the preceding chapters) that the governance and development of the Indian education system can only take place in terms of and from a multi-dimension perspective and in an interconnected and coordinated way. Otherwise, there is the risk that single initiatives and partial modifications result in unexpected side effects and possibly negative reactions from other points of the education system. Thus, side effects already have to be taken into account appropriately during the planning of initiatives.

On the one hand, comprehensive knowledge of all parts of the education and labour system is required, that this book, it is our hope has especially contributed to. On the other hand, scientifically sound educational planning is indispensable. Especially research about the Indian education system, and here in particular vocational education, requires a comprehensive understanding. This fact has also emerged from the findings of chapters in this book. The promotion of young researchers is a crucial factor to ensure that in the future the development and implementation of scientific methods in Indian educational research is undertaken in accordance with internationally accepted standards. In addition, the establishment or rather the intensification of research networks can be a fruitful venture. The dissemination of scientifically relevant findings, the academic exchange, and the

joint elaboration of scientific topics can contribute to the growth of the scientific community. To this end, the collaborative production of this book by various researchers from different disciplines of the Indian education system could be perceived of as having provided a significant contribution – now and in the future.

References

Baber, J. (2004): Skill upgrading within informal training: lessons from the Indian auto mechanic. In: International Journal of Training and Development. Vol. 8, No. 2, pp. 128-139.

Billett, S. (2000): Defining the demand side of vocational education and training: industry, enterprises, individuals and regions. In: Journal of Vocational Education and Training. Vol. 52, No.1, pp. 5-31.

Bransford, J. D.; Brown, A. L. and Cocking, R. R. (2000): How People Learn – Brain, Mind, Experience, and School. Washington: National Academy Press.

Busemeyer, M. and Trampusch, C. (2012): The Comparative Political Economy of Collective Skill Formation. In: Busemeyer, M. and Trampusch, C. (Eds.): The Political Economy of Collective Skill Formation. Oxford, New York: Oxford University Press. Pp. 3-38.

Evans, K.; Hodkinson, P.; Rainbird, H. and Unwin, L. (2006): Improving workplace learning. Oxon, New York: Routledge.

Fuller, A. and Unwin, L. (2013): Contemporary Apprenticeship –International Perspectives on an Evolving Model of Learning. Oxon, New York: Routledge.

Goldthorpe, J. (1997): Problems of Meritocracy. In: Halsey, A. H., Lauder, H., Brown, P. and Wells, A. S. (Eds.): Education: Culture, Economy and Society. Oxford: Oxford University Press. Pp. 663-682.

Gonon, P. (2008): Qualitätssicherung in der beruflichen Bildung: Eine Bilanz. In: Klieme, E. and Tippelt, R. (Eds.): Qualitätssicherung im Bildungswesen. Eine aktuelle Zwischenbilanz. Weinheim, Basel: Beltz. (Zeitschrift für Pädagogik, Beiheft 53). Pp. 96-107.

Hattie, J. (2009): Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement. Oxon: Routledge.

ILO (2011): Upgrading informal apprenticeship systems. Geneva: ILO.

King, K. (2012): The geopolitics and meanings of India's massive skills development ambitions. In: International Journal of Educational Development. Vol. 32, No. 5, pp. 665–673.

Kelly, A. V. (2004): The Curriculum – Theory and Practice, (Fifth edition), London: Sage Publications.

Mathur, A.K.; Sharma, S. K. and Saha, P. (2014): The Vocational Training System: A Learner's Perspective. In: Mehrotra, S. (Ed.): India's Skills Challenge: reforming vocational education and training to harness the demographic dividend. New Delhi. Pp. 177-199.

Mehrotra S.; Gandhi A. and Sahoo, B. K. (2013): Estimating India's Skill Gap on Realistic basis for 2022. In: Economic and Political Weekly. Vol. 48, No. 13.

Mehrotra, S.; Raman, R. K.; Kumra, N. and Röß, D. (2014): Vocational Education and Training Reform in India: Business Needs in India and Lessons to be learned from Germany (working paper). Gütersloh: Bertelsmann Stiftung.

Müller, W. and Shavit, Y. (1998): The Institutional Embeddedness of the Stratification Process: A Comparative Study of Qualifications and Occupations in Thirteen Countries. In: Müller, W. and Shavit, Y. (Eds.): From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations. Oxford: Oxford University Press. Pp. 1-48.

Pilz, M. (2002): Vocational education between innovation chaos and rigidity. In: Broadcast -The Journal of the Scottish Further Education Unit. No. 55, pp. 39-41.

Pilz, M. (2011): Analyse und Zusammenfassung: Vorbereitung auf und Übergang in die Welt der Arbeit. In: Pilz, M. (Ed.): Die Vorbereitung auf die Welt der Arbeit in Japan –Bildungssystem und Übergangsfragen. Wiesbaden: Springer VS. Pp. 274-293.

Pilz, M.; Uma, G. and Venkatram, R. (2015): Skill development in the informal sector in India: the case of street food vendors. In: International Review of Education.

Pilz, M. and Wilmshöfer, S. (2015): The challenges of formal, non-formal and informal learning in rural India: the case of fishing families on the Chilika Lagoon, Orissa. In: PROSPECTS: Quarterly Review of Comparative Education.

Singh, M. (2000): Combining work and learning in the informal economy: Implications for education, training and skills development. In: International Review of Education. Vol. 46, No. 6, pp. 599–620.

Singh, M. (2001): Reflections on Colonial Legacy and Dependency in Indian Vocational Education and Training (VET): a societal and cultural perspective. In: Journal of Education and Work. Vol. 14, No. 2, pp. 209-225.

Singh, M. (2012): India's National Skills Development Policy and Implications for TVET and Lifelong Learning. In: Pilz, M. (Ed.): The Future of Vocational Education and Training in a Changing World. Wiesbaden: Springer. Pp. 179-211.

Shavit, Y. and Müller, W. (2000): Vocational Secondary Education, Tracking, and Social Stratification. In: Hallinan, M. T. (Ed.): Handbook of Sociology of Education. New York et al. Pp. 437-452.

Ziderman, A. (2003): Financing Vocational Training in Sub-Saharan Africa. Africa Region Human Development Series. World Bank. Washington, D.C.

List of Contributors

Prof. Dr. Narendra M. Agrawal is Adjunct Professor at the Department of Organizational Behaviour and Human Resource Management, Indian Institute of Management Bangalore (IIMB), Bannerghatta Road, Bangalore - 560076, India; email: agrawal@iimb.ernet.in.

Tutan Ahmed is working at Ministry of Skill Development and Entrepreneurship as a consultant of United Nations Development Program. He has submitted his PhD thesis at the time of acceptance of the manuscript at the Indian Institute of Management (IIM) Calcutta, DH Road, Kolkata - 700104, India; email: tutana09@email.iimcal.ac.in.

Dr. Malayankandy Usha Ajithkumar is Assistant Professor at the faculty Hansraj Jivandas College of Education, University of Mumbai, Khar West, Mumbai - 400052, India; email: saiusha_2004@yahoo.co.in.

Dr. Venkatraman Badrinath is Dean of the School of Management and Director of the Department of Training & Placement, SASTRA University, Thanjavur - 613 401, India; email: deanbadri@sastra.edu.

Dr. Uma Gengaiah is Assistant Professor at the School of Gender and Development Studies, Indira Gandhi National Open University, New Delhi - 110 068, India; email: umamirun@gmail.com.

Prof. Vishal Gupta is Assistant Professor in Organizational Behavior Area, Indian Institute of Management Ahmedabad, IIMA Old Campus, Wing 14E, Gujarat - 380015, India; email: vishal@iimahd.ernet.in.

Prof. Dr. Mona Khare is Professor of the Centre for Policy Research in Higher Education & Department of Educational Planning, National University of Educational Planning and Administration, New Delhi – 110016, India; email: mona_khare@rediffmail.com.

Balasundaram Krisanthan is a Research Assistant at the Chair of Didactics of Social Sciences with a focus on School-based Civic Education, Goethe University Frankfurt am Main, Theodor-W.-Adorno-Platz 6, 60323 Frankfurt am Main, Germany; email: krisanthan@soz.uni-frankfurt.de.

*Prof. Dr. Kothandaraman **Kumar*** is Apeejay Surrendra Chair Professor of Family Business and Entrepreneurship, Indian Institute of Management Bangalore (IIMB), Bannerghatta Road, Bangalore - 560076, India; email: kumark@iimb.ernet.in.

*N.S. Sanath **Kumar*** is a Consultant at the Indian Institute of Management Bangalore (IIMB), Bannerghatta Road, Bangalore - 560076, India; email: sanath@iimb.ernet.in.

*Shyamal **Majumdar*** is the Head of UNESCO-UNEVOC, International Centre for TVET, Hermann-Ehlers-Straße 10, 53113 Bonn, Germany; email: s.majumdar@unesco.org.

*Dr. Chandrakumar **Mani*** is Assistant Professor at the Department of Agricultural and Rural Management, Tamil Nadu Agricultural University, Coimbatore, India; email: mchandrakumar@tnau.ac.in.

*Prof. Dr. Vinay Swarup **Mehrotra*** is Professor and Head of the Curriculum Development and Evaluation Centre (CDEC) and National Skills Qualifications Framework (NSQF) Cell, PSS Central Institute of Vocational Education, Bhopal - 462 013, India; email: drvs.mehrotra@gmail.com.

*Prof. Dr. Ganapathy **Palanithurai*** is a Professor in Rajiv Gandhi Chair for Panchayati Raj Studies, Department of Political Science and Development Administration, Gandhigram Rural Institute - Deemed University, Gandhigram - 624 302, India; email: gpalanithurai@gmail.com.

*Prof. Dr. Matthias **Pilz*** is Professor and Head of the Chair of Business and Economics Education as well as Director of the Center for Modern Indian Studies, University of Cologne, Herbert-Lewin-Str. 2, 50931 Cologne, Germany; email: matthias.pilz@uni-koeln.de.

*Charanya **Raman*** is a Research Associate in Organizational Behavior Area, Indian Institute of Management Ahmedabad, IIMA Old Campus, Wing 1A, Gujarat - 380015, India; email: charanyaramanh@outlook.com.

*Muthuveeran **Ramasamy*** is Project Director at the VIT University, Vellore, India; email: muthu.r@vit.ac.in.

*Prof. Dr. Mendu Rammohon **Rao*** is Provost at the Woxsen School of Business, Plot No.1267, 2nd Floor, Gateway Jubilee; Road No. 36, Jubilee Hills, Hyderabad - 500033, India; email: mrrao41@yahoo.com.

*Prof. Joginder S. **Sodhi*** is Ex-Director of the Shri Ram Centre for IR, HR, Economic and Social Development and Ex-Professor at the International Management Institute (IIM), ED 25B, Madhuban Chowk, Pitampura, Delhi - 110034, India; email: josodhi@gmail.com.

*Prof. Dr. S. Nayana **Tara*** is Professor of the Centre for Public Policy, Indian Institute of Management Bangalore (IIMB), Bannerghatta Road, Bangalore - 560076, India; email: tara@iimb.ernet.in.

*Sudheesh **Venkatesh*** is Chief People Officer of the Azim Premji Foundation, Sarjapur Road, Bangalore - 560035, India; email: sudheesh.venkatesh@azimpremjifoundation.org.

*Prof. Dr. Rengan **Venkatram*** is Professor at the Department of Agricultural and Rural Management, Tamil Nadu Agricultural University, Coimbatore - 641 003, India; email: dr.venkatrengan@rediffmail.com.

*Antje **Wessels*** is Assistant Professor at the Chair of Business and Economics Education as well as Deputy Executive Director of the Center for Modern Indian Studies, University of Cologne, Herbert-Lewin-Str. 2, 50931 Cologne, Germany; email: antje.wessels@uni-koeln.de.