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Technical & Vocational Education and Training in India: Lacking Vision, Strategy and Coherence

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Abstract

This paper briefly examines the performance of each of the five pillars of India's TVET ecosystem. It also discusses the poor design and implementation of a national vocational qualification framework. It goes to discuss the latest development in the field of education: the National Education Policy 2020 and its view on TVET, and finds it seriously wanting. The paper argues that if India does not want its tertiary education system to be overwhelmed by the massification of school education that occurred since early noughties, it must divert increasing numbers of secondary graduates to vocational education and training. Together with a rising number of jobs in the non-agricultural sector, to which India's youth aspire to, strengthening vocational education offers the prospect of India potentially realizing its demographic dividend, in the same way that many East Asian countries. If India's TVET system continues to lack vision, strategy and coherence to underpin the country's aspiration to become a high human development country, we risk frittering away our dividend.

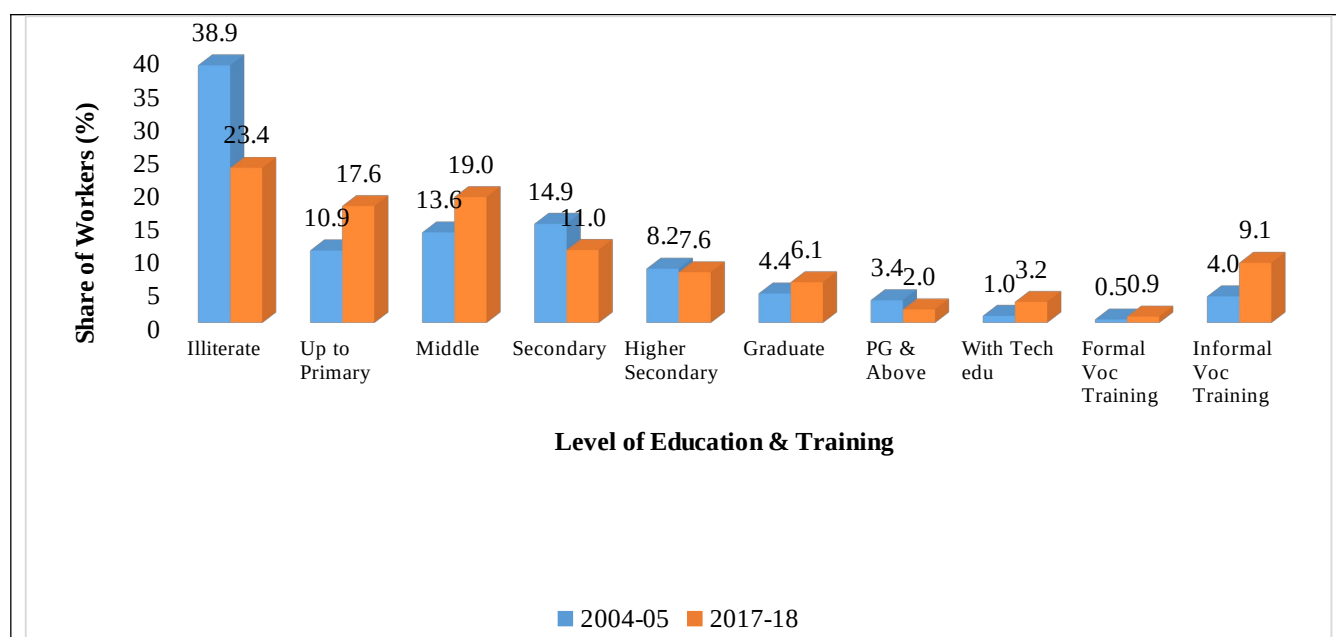
Developing countries face the uphill task of dealing with multiple challenges all at the same time. They are attempting to address those challenges and compress their development trajectory in a shorter span of time, a process which took two centuries to achieve in the now industrialized countries. There was an unfair advantage the majority of European now industrialized countries enjoyed of having exploited their colonies over those centuries, enabling them to change their production and employment structure from primary to secondary to tertiary sectors, thus generating the resources required for investing also in their education systems, including in technical training.

Developing countries that succeeded early in their development process in investing in education and health services, while also adopting an industrial strategy, have demonstrated success in similarly transforming their economies, through a consciously-driven planned development process. This holds especially true of East and South east Asian countries, especially China (Chang, 2003). However, what is less well understood is that these countries also invested in a general education and vocational training strategy that underpinned this successful phase of industrialization, making Asia the 'Factory of the World' in the latter half of the 20th century (Lee and Mehrotra, 2017). This strategy holds out valuable lessons for India, which barely

managed to universalize net enrolment at primary level (classes 1-5) only by 2007 (the reasons for which have been analysed in Mehrotra et al, 2005; Mehrotra, 2006). Finally by 2015 India managed to increase secondary enrolment (classes 9-10) to over 80% (from 58% in 2010), thankfully with gender parity. This fact of course masks the poor learning experience of children who have benefitted from this very rapid massification of school education. This sharp increase also led to massification of enrolment at tertiary level, from 11% in 2006 to 26% in 2018, again accompanied by a serious deterioration in quality of education and employability of youth. So poor was the employability of these youth, that in fact, youth unemployment shot up from 6% (for 15-29 year olds) in 2012 to 18% in 2018 – itself a 45 year high (Mehrotra and Parida, 2019). There is thus a serious crisis of employability of India’s youth being churned out by a sharp upswing of school and higher education. One aspect of this high unemployment is the serious neglect of vocation education in India’s school system.

We must begin by recognizing how woeful is the educational level of our workforce of 466 million in 2018, even though it has improved compared to 2004-5 (see Figure 1).

Figure 1: Distribution of the workforce by their level of education and training in India.



Source: Mehrotra and Parida, 2019

This paper begins by raising two conceptual issues which are of relevance to discussing the Indian technical and vocational education and training (TVET) situation. It goes on then to

describe briefly the five pillars of India's TVET ecosystem (section 2). It then examines the performance of each of the five pillars. It then also discusses the poor design and implementation of a national vocational qualification framework (section 3). Finally, it examines the latest development in the field of education: the National Education Policy 2020 and its view on TVET, and finds it seriously wanting (section 4). Section 5 concludes.

1. Two conceptual issues

We begin with two conceptual or theoretical issues, one which derives from pedagogic theory (or to the realm of education), and the other that derives from the theory of labour markets. Starting with these two conceptual formulations is essential because without this conceptual foundation of TVET, skill development (SD) efforts of India's policy makers have been floundering over the last decade (for evidence, see Expert Group report, MSDE, 2017; Standing Committee of Parliament on Labour, 2017; Comptroller and Auditor General, 2015).

There seems to have gained ground a belief among SD policy-makers that SD is all about vocational skills alone. That belief might be understandable a decade ago when it was discovered that barely 2.3% of the entire workforce of India had formally acquired any vocational education/training. However, in pedagogy, Skills are defined as having three dimensions, each equally important, and having one of these dimensions without the other two does not mean a person is skilled. The first of these are 'foundational skills' (also called cognitive skills), involving literacy and numeracy. These skills can be acquired to different levels of competence, from quite basic to advanced. Having only basic level foundational skills may not suffice to get a formal sector job, or even a job of any kind besides one requiring sheer physical labour; that is why measuring mean years of schooling in a population or workforce becomes so important. The returns to education are higher in terms of earnings the higher the level of education acquired by a young person. These skills are called foundational because they are not only crucial in themselves, but also to build other skills required at the workplace: communication skills, problem-solving and critical thinking abilities.

The second type of skills required at the workplace, that employers often complain about are not possessed by workers, is transferable or transversal (or non-cognitive) skills, so called because they are useful regardless of what work one does: blue-collar or white-collar. They consist of attributes like creativity, initiative, leadership, ability to work independently; or problem-solving,

teamwork or motivation; or English language or computing skills. For instance, in a 45 country survey PISA (Programme for International Student Assessment) found that one-fifth of students performed below the basic level of competence on the digital reading scale (UNESCO, Global Monitoring Report, 2013).

Vocational or technical skills are the third type of skill. A properly vocationally skilled person should have both foundational skills and transferable (soft) skills in order to perform well at the workplace. (For evidence on India's lack of foundational skills, see Figure 1)

There is another conceptual issue that is a source of great confusion among both scholars and policy makers. Is TVET a public good, or a private good, or a quasi-public good? A private good is defined in economics as 'an item that yields positive benefits to people that is excludable', i.e. its owners can exercise private property rights, preventing those who have not paid for it from using the good or consuming its benefits; and rivalrous, i.e. consumption by one necessarily prevents that of another. A private good, as an economic resource is scarce, which can cause competition for it.

The characteristics of pure public goods are the opposite of private goods:

- a. Non-excludability: The benefits derived from pure public goods cannot be confined solely to those who have paid for it. Indeed non-payers can enjoy the benefits of consumption at no financial cost – economists call this the 'free-rider' problem. With private goods, consumption ultimately depends on the ability to pay.
- b. Non-rival consumption: Consumption by one consumer does not restrict consumption by other consumers – in other words the marginal cost of supplying a public good to an extra person is zero. If it is supplied to one person, it is available to all.
- c. Non-rejectable: The collective supply of a public good for all implies that it cannot be rejected by people. A good example is a nuclear defence system or flood defence projects.

There are relatively few examples of pure public goods. Examples include flood control systems, broadcasting services provided by Doordarshan, public water supplies, street lighting for roads. Finally, a quasi-public good is a near-public good i.e. it has many but not all the characteristics of a public good. Quasi public goods are:

- a. Semi-non-rival: up to a point, extra consumers using a park, beach or road do not reduce the space available for others. Eventually beaches become crowded as do parks and other leisure facilities. Open access Wi-Fi networks become crowded.
- b. Semi-non-excludable: it is possible but often difficult or expensive to exclude non-paying consumers. E.g. fencing a park or beach and charging an entrance fee; building toll booths to charge for road usage on congested routes.

TVET has the characteristics of a quasi-public good. The more of it that is available the better it is for everyone. If employers or the government train people, then more people are available to be employed at better wages. Companies often made workers it trained to sign bonds that they will not leave until they serve the company for a number of years, so they try and exclude other companies from poaching them, thus preventing free riding. Given that TVET is not a pure public good, and only a quasi-public good (with some characteristics of a private good), it is not immediately obvious that it must be provided by the state – unlike general academic school education, in which case the state provision of education ensures large externalities to the entire population, going well beyond the individual receiving it. The essential point is that the approach to financing and providing must consist of a combination of industrial and state provision, with employers playing an extremely important part. Unfortunately, in India this has barely been understood by policy makers (Mehrotra and Singh, 2017).

2. Five Pillars of TVET in India

Ten years ago, there was very little TVET available in India, except for Industrial Training Institutes (ITI), mostly government-financed and managed. The 11th Five Year Plan of India was the first one ever to devote a separate chapter on Skill Development, followed by another one for the 12th Plan (Planning Commission, 2013).¹ The challenge was to expand the system, while consistently improving quality of provisioning (Mehrotra,2014a). India's TVET has evolved and grown rapidly in the last decade or so, though in an extremely ad hoc and unplanned manner, despite efforts to guide the process through first one national skills policy (Ministry of Labour and Employment, 2009) and then another (Ministryof Skill Development, 2015).

¹ The author had the privilege to lead the team that wrote the 12th Plan chapter on Skill Development. However, after the 12th Plan, there has been none, since the Planning Commission was abolished at the end of 2014 by a new right-wing government, and was replaced by another, much weaker institution, with much fewer powers and no financial allocation authority (Mehrotra and Guichard, 2020).

Since about 2011, five pillars of TVET in India have emerged: a. vocational education in schools and higher education (of the Ministry of Human Resource Development (MHRD), Government of India (GOI)), b. vocational education by National Skill Development Corporation's (NSDC) Private Training Partners (NSDC VTPs), c. Public and private Industrial Training Institutes (ITI) (of the Ministry of Skill Development & Entrepreneurship, MSDE, GOI), d. In plant training by companies and e. the skill development schemes of 16 ministries of the GOI. Government of India through Ministry of Skill Development and Entrepreneurship provides the overall framework for skills development in the country. Its institutions notify/develop courses, fund, assess and certify the courses. In addition, the MSDE and MHRD run a nationwide Apprenticeship Training system since 1961 (under the Apprenticeship Act), which has remained confined to the organized segment of economic activity, which accounts for only 15% of India's workforce of 466 mn. Here too, it is known that only the large enterprises (mainly public sector ones and some corporates) offer apprenticeships; the registered SMEs, which barely account for 3% of all non-agricultural establishments in India, rarely do (97% of India's non-farm enterprises are unregistered). In other words, the vast majority of youth, if they acquire any vocational skills, do so on-the-job in the 85% of units that employ them in the unorganized sector enterprises in industry and services.

Not surprising, therefore, that NSS 2011-12 (Employment-Unemployment Survey, 68th Round) informed us that only 2.3% of the total workforce of India has acquired any **formal** vocational education/training. Despite "Skill India", the GOI's much-advertised programme, that share went up in 2017-18 (Periodic Labour Force Survey, NSS) to merely 2.4%.

For a country where the educational level of the workforce has remained abysmally low since independence, with precious little improvement except within the last 15 years, the lack of a vocationally skilled force is an added disadvantage. This is so for at least two reasons: one, it entrenches informality in the workforce, since one needs at least 8 years of education to become even eligible for organized sector work; and two, low education levels remain a barrier to raising income levels of the poor, which reduces the poverty-elasticity of GDP growth.

3. Weak TVET system: now growing fast without a Vision

Successful TVET systems in the world are those where TVET is provided mainly by employers (as we noted in section 1), as that ensures a demand-based SD system. In the previous section we noted that most of India's TVET provisioning is done by the government. While there is some industry involvement in provision of vocational training, it is confined to a limited share of all registered enterprise; the latter account for barely 3% of India's 66 million non-agricultural enterprises. In 2014 only 36% of all registered enterprises were providing enterprise-based training, which means that the majority were not. There is evidence to suggest that most enterprise-based training is confined to large public sector undertakings, and large corporate entities; the small and medium enterprises (SMEs) have tried to avoid providing training (a subject we will return to later). Meanwhile, in this section we focus on government provision of TVET in the remaining four pillars of the TVET system.

School level vocational education

Till 2014 there was practically no vocational education in schools. The only VE available was at senior secondary level for 17-18 year olds (classes 11-12), which attracted no more than 3% of total senior secondary enrolment in India. It offered poor quality VE, and hence did not attract many. However, since 2014, after the acceptance of a vocational qualification framework (called the National Skills Qualification Framework, henceforth NSQF), VE was introduced at secondary level for 15-16 year olds, in classes 9 and 10.² The number of secondary schools that offer VE has grown since then in 2020 to about 10 000; or still only 10% of the total government secondary schools in India. VE is offered as one of the subjects; it is not a separate stream in VE (unlike, say, in China).

There is very limited industry or employer involvement in this vocational education, without which this model is destined to not provide the country with the kind of staff that modern industry or service sectors need. Second, there is little or no provision for apprenticeship, or even internship for these youngsters, without which the VE is doomed to failure.

² Although the author chaired the Ministry of Human Resource Development, GoI, task force that prepared the blueprint for the NSQF (see Mehrotra, Mehrotra and Banerjee, 2011), the implementation by government officials led to distortions that undermined its success.

Third, there has been no field based evaluation of the school VE. Preliminary evidence on the experience since 2014 is not good. One, while there is a Management Information System (MIS) maintained by the Ministry of Education (Government of India), it is based on what data state governments provide, which itself is of poor quality. Two, no tracer study has so far been conducted to assess what those students who undergo VE actually do when they graduate, so we have no evidence if the employability of these students is any better than of those who only undergo general academic education. The VE course is in any case, not a stream, but an optional course in lieu of an academic course at secondary/higher secondary levels. Three, the teachers who come in to teach vocational subjects are all contract teachers, coming in from outside to offer one course. Fourth, even for the courses that are offered, the aim of the teachers is to get students to pass the exam, despite all the talk about competency-based instruction the NSQF speaks about.

In addition to the secondary/senior secondary VE, tertiary educational institutions, especially universities began offering Bachelor of Vocation Education degrees (or even certificates in one year, or diplomas in two years). They suffer from similar problems in that UGC Guidelines for B. Voc. states: “The university/college should develop the curriculum in consultation with industry. The industry representatives should be an integral part of the academic bodies of the university/college. While doing so, they should work towards aligning the skills components of the curriculum with the NOSs [National Occupation Standards] developed by the respective Sector Skill Council (SSC).” We will discuss the supposed “skill components of the curriculum with the NOSs developed by the SSCs’ below. Meanwhile, the Guidelines seem quite lax in respect of industry involvement in B. Voc.. Thus, Clause 6.7 states: “ The practical/hands-on portion of the skills development components of the curriculum should be transacted normally in face to face mode, either within the institution or at a specified industry partner location. However, if due to the nature of the skill to be learnt, the industry prescribes its acquisition through blended or distance mode, the same may be followed.” Given that industry involvement through an internship or apprenticeship, neither of which can be ‘online’ or distance mode, is a sine qua non of quality TVET, this approach is unlikely to lead to employability of vocational students.

NSDC funded private vocational training providers

This is the second, and like VE in schools, new pillar of TVET in India. In 2010 the government of India decided that because the economy had been growing at an unprecedented rate until the global economic crisis, the labour market needs to quickly train young people who can enter the labour force after some short-term training. The implicit strategy was based on the understanding that school leavers, if provided with a maximum of 3 months training in a vocational field by private providers will get employment. NSDC was meant to be a private-public partnership, with financial involvement of FICCI, CII and Assocham (the private chambers of commerce with national reach). That proved to be a chimera, and 75% of funding to get a privately owned and managed vocational training provider (VTP) to start training youngsters came from government sources, with the remaining 25% invested by the VTP owner. These VTP owners, important to note, were not employers, but private standalone training providers (Mehrotra, 2020).

NSDC's second role was to incubate Sector Skill Councils, which were intended, like in many Anglophone countries, to provide employer/industry representatives a role in training design and provision.

The model was flawed on many grounds, as elaborated at length by an Expert Group created by the Ministry of Skill Development and Entrepreneurship (MSDE Expert Group, 2017).

Industrial Training Institutes (ITI): public and private

The third pillar of India's TVET ecosystem are ITIs. At the end of the first decade of the millennium there were 1896 government financed and managed ITIs, which have been in existence since the 1950s. There were also private ITIs, numbering below 2000 at the time, that were financed and managed privately, although under conditions approved by the government. Most of the trades for which training was available were useful for manufacturing. These were the only institutions in the TVET system that provided training for a minimum of one year to three years, depending upon the occupation, not of very high quality, nor involving industry engagement (Mehrotra, 2014). All other institutions tend to provide short-term training.

As the demand for trained young people grew with India achieving an unprecedented GDP growth rate, and non-agricultural jobs grew rapidly, the number of private ITIs were permitted to grow in number. However, the number of private ITIs grew so rapidly that by 2018 their number

had shot up from under 2000 to over 11 000. When such rapid expansion takes place, it is inevitable that there will be a precipitous decline in quality, resulting from the incapacity of the state to regulate these institutions, and their teaching-learning process, let alone outcomes. A parliamentary report of the Standing Committee found the processes seriously flawed (Standing Committee of Parliament, 2017).

Central government ministries offering training courses

Other than the three types of public and private institutions discussed above, the central government allowed at least 16 other line ministries to conduct vocational training. Most of the training that they offered was related to their line of work. The Ministry of Rural Development was offering the largest number of programmes, even though they were mostly short-term training programmes, lasting a few months. In fact, all these ministries were conducting short-term training.

The end result of this plethora of ministries (Ministry of Skill Development & Entrepreneurship offering ITI-based training and Ministry of Human Resource Development responsible for school-based VE were the biggest) was that the entire SD ecosystem remained highly fragmented, with practically no coherence between them. Practically no part of the system talks to other parts (Mehrotra, 2020).

Apprenticeships: a new beginning?

Formal apprenticeships have been promoted by the GOI in the organized sector of the economy since the early 1960s. In 1961, the Government ushered in the Apprentices Act which was applicable to engineering, non-engineering, technology, and vocational courses. It constituted apprenticeship councils and advisors, and placed a statutory obligation on employers to engage apprentices with a stipend and in the ratio prescribed for designated trades. It also imposed a penalty of six months of imprisonment or a fine or both on the employer in case of non-compliance (Mehrotra, 2014).

However, apprenticeships have stagnated between 2000-2014 due to the challenges created by the 1961 Act and stood at 0.28 million in 2014. Administratively, a complex workflow for engagement of apprentices by companies implied that MSMEs avoided engaging apprentices. The Act gave power to the bureaucracy to impose strict and burdensome compliance norms on

companies. The threat of a penalty was unhelpful. For the apprentice too, the attractiveness remained limited, in terms of the stipend offered and progression opportunities. Finally, the improper dissemination of the benefits of apprenticeships led to training being perceived as less aspirational than a general education (Mehrotra, 2014).

The law was amended in December 2014, and the National Apprenticeship Promotion Scheme (NAPS) in 2016 was introduced. Now apprenticeship is a valid pathway for youth educated beyond grade five to acquire a skill. Their base stipend has been increased to ensure sustenance during an apprenticeship. Technology has rendered contractual paperwork and process seamless and minimal.

An IT platform enables interface between stakeholders and apprentices for compliance. The service sector accepts youth by making apprenticeships obligatory for this sector.

The prescriptive quota regime has made way for a percentage band of 2.5% to 15%, within which employers can decide the number of apprentices based on their needs and capacity. SMEs having four or more employees are now eligible to keep apprentices either on their own or as a group of employers. A realistic financial penalty has replaced imprisonment.

Furthermore, employers are empowered to decide their own curricula and the duration of apprenticeships (between 6-36 months) on a need-basis. NAPS further incentivises employers by partially splitting the stipend burden between them and the government.

The government has also shown urgency in its intent to push apprenticeships through catalysts in the form of Third Party Aggregators (TPAs) that can work in clusters with both MSMEs and large industries. They are empowered to help aggregate demand in these clusters, pool resources in the case of SMEs, mobilise potential apprentices, deliver basic training, facilitate paperwork and above all, educate stakeholders on the need for apprenticeships. Regulatory powers have also been delegated to the industry-led Sector Skill Councils (SSCs) to administer apprenticeships in their respective sectors (Agarwal, 2019).

The results are encouraging. More than 1.1 million candidates and 70,000 companies are now registered on the apprenticeship portal; annual apprenticeships have increased by 60%, on a base of about 250 000 (Mehrotra, 2014; Agarwal, 2019).

However, the challenges of awareness, lack of a progression pathway, absence of an integrated credit framework, the not-so-clear value proposition for certifications and training capacity

shortages remain, which the industry can support to address. Firstly, the government and industry stakeholders/SSCs need to jointly promote apprenticeships as a powerful learning tool. Secondly, MSMEs should leverage TPAs to create tailored apprenticeships. Thirdly, although the regulations protect the apprentice's rights, the spirit of the law can only be upheld by the employer by creating a learning experience during the apprenticeship. Finally, the challenges of the new system need to be conveyed to the government periodically, so it does not suffer fossilization again (Agrawal, 20219).

a. National Skills Qualification Framework (NSQF) in India: a unifying framework for SD?

Like with each of the five pillars, and the issues remaining with a somewhat improved formal apprenticeship system, there is still little effort to integrate the highly fragmented SD system. There were expectations that a NSQF will be able to resolve these issues. However, as we argue in this section, this does not quite appear to have worked out like that.

Like about 100 other countries in the world, India too decided in 2011 to follow the Anglo-Saxon tradition of initiating a vocational qualification framework. NVQFs originated in advanced industrialized countries, where majority of the workforce is in formal employment. The experience there with these frameworks has not been encouraging (Allais, 2017; Raffe, 2012; Wheelahan, 2008). In India, in contrast, 91 per cent of workers are informally employed (usually with no written contract and no old age pension, death/disability insurance, maternity benefit). This situation has been one factor behind the lack of success with NVQF implementation in many developing countries (Mehrotra, 2020).

However, there were also many systemic issues with the pre-employment TVET system in India. The promise of the National Skills Qualification Framework (NSQF), introduced at the end of 2013, was that it should be able to address some of these issues.

The first systemic issue was the lack of uniformity in qualifications across TVET institutions that existed before NSQF. Another was the lack of clear recognised pathways of learning for upward mobility for students in the formal vocational education and training stream of education into the tertiary education system. Third, there was lack of credibility among stakeholders due to poor

quality of delivery and outcomes after training, partly due to shortage of trainers, especially teachers with industry or work experience. Fourth, TVET, unlike general education, is supposed to lead to a certain level of competence to perform tasks in an occupation. NSQF was supposed to introduce competence-based training. Fifth, there was lack of horizontal mobility in the TVET system. There should be the possibility of horizontal mobility so that the students from the vocational stream are able to enter the general education stream, if they so desire. The challenge, therefore, was to create a new system of secondary and higher secondary education where all students get an opportunity to develop vocational skills along with the academic skills.

Finally, in a highly informalized workforce, where the workforce had acquired many skills over time on the job, there was no formal recognition of informal (prior) learning (Mehrotra, 2020).

The reality of the implementation and outcomes of the NSQF have turned out to be quite different from what was intended. The main change that occurred after the NSQF was introduced in early 2014 was that by early 2017, nearly 10 000 National Occupation Standards (NOS) were prepared, which were clubbed together into about 1900 Qualification Packs (QP), corresponding to job roles. Given the problematic process of NOS-QP preparation a very large number were prepared at break-neck speed. There seems little evidence that the methodology followed was what should have been followed; nor did it lead to curriculum development involving relevant stakeholders (Expert Group, MSDE, 2017).

The TVET policy makers did not confront the reality that the ecosystem was seriously short of teacher-trainers. Moreover, the majority of TVET teachers lacked any industry experience on the job. In India, senior vocational secondary school teachers often lack basic qualifications, are not in regular positions (but in ad hoc or contractual posts) and in ITIs have often received their training in ITIs themselves. In other words, an essential prerequisite of TVET reform was never really met in six years since NSQF was implemented.

The expectation was that the NSQF will lead to the emergence of an outcome-based, as opposed to an input-based, TVET system. The expectation for the NSQF (as specified by an expert group appointed by the government) was that policy makers will define 'outcomes' by 'defining the curriculum, pedagogy, assessment and certification norms'. However, unfortunately none of what the expert group had specified actually happened in reality over 2012 to 2019 (Mehrotra,

2020). The problem is that this has been the experience of many developing countries around the world with vocational qualification frameworks (Allais, 2017).

The Germanic TVET system (which is followed in Austria, Switzerland and significant extent in Holland) is different in design from the Anglo-Saxon system of which NVQFs are a part. The former recognizes that quality outcomes only depend in part on assessment of performance and that more significantly, they rely on the quality of provision and the partnerships between employers, the state, trade unions and TVET providers (Hoeckel and Schwartz, 2010). For example, in the German dual system of TVET, it is the employers who set the examinations at the end of apprenticeships. No such thing happens in India still, in 2020.

While the promise was that competency-based curriculums (CBCs) will emerge, that will improve quality of delivery of TVET, CBCs or even the NSQF have not been recognized or accepted till 2020 in ITIs, or the central line ministry training institutions, or industry in-house training programmes. Thus India's TVET suffers from two debilitating weaknesses in this regard. The notion of CBC itself has not been recognized ecosystem-wide: three of the five pillars hardly recognize the NSQF (ITI, enterprise-based training, 16 ministries of the GoI). In addition, CBC itself has been narrowly understood even in the two remaining pillars (vocational courses for schools and NSDC-funded VTPs offering short term courses) as simply specifying NOSs and QPs (in other words, stating the outcome to be achieved), without completely rewriting the curriculum that serve as inputs to the achievement of those trainee-level outcomes.

One promise of NSQF, in fact its objective, was to enable vertical mobility of trainees. Many states have taken appropriate decisions to enable vertical progression to take place. However, given that three of the five pillars of the TVET system have not even implemented the NSQF, it is obvious that these decisions could have been taken regardless of whether a NSQF was in place or not.

b. National Education Policy 2020 (NEP): does it offer hope for TVET?

Given the state of TVET in India, the final issue we discuss here is: does the first NEP in 30 years offer any hope of a serious vision, let alone a strategy of reform that TVET desperately needs? The NEP begins by recognizing that less than 5 % of India's workforce has formally

acquired any vocational education/training (MHRD, 2020). The actual figure was 2.3% in 2012 (NSS, 68th Round). However, after six years of Skill India, a national government programme started 2015, the share of formally trained in the workforce rose barely 0.1% to 2.4% in 2018. Given this appalling performance of the government-managed, government financed TVET, it is unfortunate that the NEP 2020 of the Government of India does not even begin to recognize the nature of the challenge, and has therefore, little hope to offer.

NEP recognizes that VE in schools was also not designed to provide openings in tertiary education to school students who had vocational education qualifications, which put them at a disadvantage relative to the students from mainstream education. “This led to a complete lack of vertical mobility for students from the vocational education stream, an issue that has only been addressed recently through the announcement of the National Skills Qualifications Framework (NSQF) in 2013”, the NEP claims. We have already demonstrated above that the vertical mobility was not really contributed by NSQF itself; it was achieved despite NSQF, not because of it. The authors of NEP clearly seem oblivious to, or wish to ignore, the problems with NSQF in India, its design as well as its inadequate mode of implementation.

The NEP goes on: “This policy aims to overcome the social status hierarchy associated with vocational education through ...beginning with vocational exposure at early ages, quality vocational education through middle and secondary school and smoothly into higher education. Integrating vocational education in this way will ensure that every child learns at least one vocation and is exposed to several more” (16.3). This is all it has to say about making VE aspirational, which is rather little. Then, it launches into the usual target driven approach, without explaining how the target will be met. “By 2025, at least 50% of learners through the school and higher education system shall have exposure to vocational education” (16.4). How India will go from less than 10% access to VE to 50% in a matter of five years is a question.

It goes on: “Towards this, secondary schools will collaborate with ITIs, polytechnics, local industry etc. Higher education institutions will offer vocational education either on their own or in partnership with industry. The B.Voc. degrees introduced in 2013 will continue to exist, but vocational courses will also be available to students enrolled in all other Bachelor’s degree programmes, including the 4-year holistic Bachelor’s programmes” . There is nothing new in all of this, nor is there any further explanation how this is to be done.

The need for industry involvement and engagement is barely mentioned. “The MoE will constitute a National Committee for the Integration of Vocational Education (NCIVE), along with industry participation, to oversee this effort and should also earmark budget for promoting this integration” (16.5). “Incubation centres will be set up in higher education institutes in partnership with industries” (16.6). However industry partnership is a much more complicated process, but there is little recognition of such complexities.

It also notes: “The National Skills Qualifications Framework will be detailed further for each discipline vocation / profession. Further, Indian standards will be aligned with the International Standard Classification of Occupations maintained by the International Labour Organisation. This Framework will provide the basis for Recognition of Prior Learning. Through this, dropouts from the formal system will be reintegrated by aligning their practical experience with the relevant level on the Framework. The Framework will also facilitate mobility across general and vocational education.” (16.7) Given the state of the NSQF as discussed in the previous section, it is clear from this para that there is little understanding in the government that international evidence suggests that vocational qualification frameworks have been barely successful in the highly formalized economies of the advanced industrialized countries; their success in the global South remains to be demonstrated. Moreover, Recognition of Prior Learning (RPL) acquired by the 90% of the workforce that picked up vocational skills on the job and have very low levels of education, is given a one-sentence passing reference. There is not even a mention of the fact that for the millions already in the workforce, this RPL might be a passport for success in a world of work that is increasingly looking for certification as a signaling tool in the labour market.

Professional education

The NEP takes an appropriate approach to professional education. “The practice of setting up stand-alone technical universities, health science universities, legal and agricultural universities, or institutions in these or other fields, shall be discouraged. No new stand-alone institutions will be permitted except in specific fields as per national needs. All existing stand-alone professional educational institutions will have to become multi-disciplinary institutions by 2030, either by opening new departments or by operating in clusters.” (17.1)

The NEP also rightly notes: “Although Agricultural Universities comprise approximately 9% of all universities in the country, enrolment in agriculture and allied sciences is less than 1% of all enrolment in higher education (17.2).” For legal education too, it takes the right approach: “State institutions offering law education must consider offering bilingual education for future lawyers and judges - in English and in the language of the State in which the law programme is situated. This is to alleviate delay in legal outcomes consequent to need for translation.”

Healthcare education shall be re-envisioned such that the duration, structure, and design of the educational programmes are as required for the roles that graduates will play. “For example, every healthcare process/intervention (e.g., taking/reading an ECG) does not necessarily need a fully qualified doctor. All MBBS graduates must possess (a) Medical skills, (b) Diagnostic skills, (c) Surgical skills, and (d) Emergency skills.” 17.4). However, the NEP shows no recognition of how serious is the shortfall of health professionals in the country generally, nor does it notice that public health is severely handicapped. This shortage of personnel becomes an overwhelmingly important constraint upon India’s ability to handle the COVID pandemic; there is no mention of the fact that India has historically underspent on public health, and its government health system suffers from severe shortages, especially in states with the worst health indicators (mostly in the north and east of India). These public health system weaknesses have been amplified by the Covid pandemic and its impact on the entire population. All NEP says is: “Students will be assessed at regular intervals on well-defined parameters primarily for the skills required for working in primary care and in secondary hospitals.”

In respect of technical education it recognizes the need for “closer collaboration between industry and institutions to drive innovation and research.” Again, there is not even a hint of an effort to suggest how this might be achieved.

Finally, there is barely a sentence recognizing Industrial Revolution 4.0, and the challenges that our industry will face moving forward. “India must take the lead in preparing professionals in cutting-edge areas that are fast gaining prominence, such as Artificial Intelligence (AI), 3-D machining, big data analysis and machine learning among others in technical education, genomic studies, biotechnology, nanotechnology, neuroscience and so on in the sciences. These topics, and many others like them, must be woven into undergraduate education at the earliest. (17.5)”.

India has come to pride itself at having become the 5th largest economy in the world (which has already slipped to seventh place after GDP contracted post-Covid). However, the five countries that are at the forefront of the fourth industrial revolution (USA, Germany, Japan, China, South Korea) all are also major manufacturing nations, and all have had some form of an industrial strategy that underpinned their education system. India has neither had an industrial strategy in the last three decades, nor has it even revised its National Education Policy. After waiting for 30 years, we now have a NEP that does not mostly recognize the nature of the challenges, let alone addressing them.

Concluding remarks

This paper has examined the five pillars of India's TVET system, and found them each seriously wanting. Given that India's demographic dividend has been around for 40 years already (since the early 1980s), and that there are only two more decades left for this dividend to end, one expected India's policy makers would have realized the importance of TVET long ago. However, the weaknesses of India's education system had already shown themselves in that the poor quality of learning in general academic education had resulted in high drop out rates, with youth entering the labour market to join informal work. Their low level of education and its poor quality ensured that they would not be accepted in formal work places.

India's weak TVET system, we noted, was ignored for 50 years by policy makers. However, since the middle of the first decade of the 2000s, both the economy and the TVET system have been growing fast. But lacking a vision, the TVET expansion has been unplanned, without reference to any particular goals of ensuring employability, as well as actual industrial or service sector involvement.

Foundational problems remain with a very high share of India's workforce still either illiterate or only with education upto grade 8. Most of the vocational skills acquired are on the job in informal apprenticeships. Formal apprenticeships remain small and relatively insignificant.

Unfortunately, the National Educational Policy 2020 lacks any understanding of the problem. India needs a Vision (first to build India as a manufacturing nation like the East Asians had), then a Strategy to implement that vision, which essentially means a TVET strategy aligned to the manufacturing strategy. Only then a Policy for TVET can be developed, with focus on all three

dimensions (foundational, transferable, technical) along with new understanding of recognition of prior learning (which does not exist), given that 91% of the workforce is informal and an even higher share is informally trained. The Vision should establish employability and employment as a goal, which is measurable: that requires industry or employer involvement at every stage of delivery.

Bibliography

Agrawal, Rajesh (2019), India's moribund apprenticeship system has been revived', Indian Express, August 29.

Allais, S. 2017. "Labour Market Outcomes of National Qualifications Frameworks in Six Countries". *Journal of Education and Work* 30(5): 457:470.

Chang, Ha-Joon ed. (2003) *Rethinking Development Economics*, London: Anthem Press.

Comptroller and Auditor General (2015), *The National Skill Development Corporation Report*, Government of India, New Delhi

Expert Group (2017, *Report of the Committee for Rationalization and Optimization of the Functioning of the Sector Skill Councils*, Ministry of Skill Development & Entrepreneurship, Government of India, New Delhi

Hoeckel K. and Robert Schwartz, 2010, *Learning for Jobs OECD Reviews of Vocational Education and Training: Germany*, OECD, Paris.

Lee, Jong-Wha, and Santosh Mehrotra, 2017, *Human Capital in South Asia. Problems and Prospects*, Asian Development Bank, Manila.

Mehrotra, Santosh, PR Panchamukhi, R. Srivastava and Ranjana Srivastava (2005), *Uncaging the Tiger Economy. Universalizing Elementary Education in India*, New Delhi: Oxford University Press.

Mehrotra, Santosh ed (2006), *The Economics of Elementary Education in India*, New Delhi: Sage Publications

Mehrotra, Santosh , VS Mehrotra and B. Banerjee (2012), A National Vocational Education Qualification Framework for India: New Delhi. National Institute of Labour Economics Research,. Available at [docplayer.net > 7763518-A-proposed-national-qualifications-framework...](http://docplayer.net/7763518-A-proposed-national-qualifications-framework...)
IAMR Occasional Paper No.4/2012

Mehrotra,Santosh (2014), *India's Skills Challenge. Reforming Vocational Educaion and Training to Harness the Demographic Dividend*, Oxford University Press, New Delhi

Mehrotra, Santosh 2014a, 'From 5 to 20 million a year: The Challenges of Scale, Quality and Relevance in India's TVET', *Prospects, Quarterly Review of Comparative Education*, 44 (2): 267-277

Mehrotra, Santosh, and J. Parida, 2019, ' India's Employment Crisis: Rising Education. Levels and Falling Non-agricultural Job Growth', CSE Working Paper 2019/10,

available at: [https://cse.azimpremjiuniversity.edu.in > uploads > 2019/10](https://cse.azimpremjiuniversity.edu.in/uploads/2019/10)

Mehrotra, Santosh and A.P. Singh, 2017, "Industry Engagement in India's TVET: No Skin in the Game", *International Handbook of Vocational Education*, Springer.

Mehrotra, Santosh (2020), "The National Skills Qualification Framework in India: The Promise and the Reality", *ICRIER Occasional Paper 289*, Indian Council for International Economic Relations, New Delhi.

MHRD (Ministry of Human Resource Development), *The National Education Policy 2020*, Government of India, New Delhi.

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

Ministry of Skill Development and Entrepreneurship (2015), *National Skill Development Policy*, Government of India, New Delhi.

Planning Commission (2013), *12th Five Year Plan. Towards Faster, More Inclusive and Sustainable Growth*, Sage Publications, New Delhi.

Raffe, D. 2012 "What is the Evidence for the Impact of National Qualifications Frameworks?" *Comparative Education* 49(2): 143-162. DOI: 10.1080/03050068.2012.686260

Standing Committee on Labour (2018-19), Action taken by the Government on the Observations/ Recommendations of the Committee contained in their Thirty Report (Sixteenth Lok Sabha) on "Industrial Training Institutes (ITIs)" LOK SABHA SECRETARIAT February, 2019

UNESCO (2013), *Global Monitoring Report (Skill Development)*, UNESCO, Paris.

Wheelahan, L. 2008. "Can learning outcomes be divorced from processes of learning? Or why training packages make very bad curriculum:" Presented at the 11th Annual Australian Vocational Education and Training Research Association Conference, TVET in Practice, Adelaide, April.