

**Social Networks as Platforms for New Public-Private Partnerships in
Technical and Vocational Education**

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Abstract

A knowledge society cannot be constituted with millions of people kept technically illiterate and vocationally disengaged. India with more than a billion people has an elaborate public system of imparting technical and vocational education, which, however, suffers from a mismatch with expectations of the market as also from the inability to address issues related to traditional artisan skills. Most public private partnerships model cater to sharing of property rights between large public and private agencies. Indian society, contrarily, has an extensive network of micro private agents who through multiple forms of linkages have for long ensured continuity and upgradation of skills and technical knowledge. This paper argues for redrafting of the institution of vocational skills and technical knowledge based on supports derived from such traditional networks of rural entrepreneurs.

Keywords:

Technical skills; Vocational knowledge; India; Networks; Micro entrepreneurs; Rural; Traditional knowledge

Introduction:

The age of knowledge has challenged the vast and populous country of India in ways unknown to scholars and policymakers from advanced countries. India has multiple layers of technologies, variegated skills and numerous institutions of economic activity. Communications across such layers are poor and often absent. Unlike advanced countries in which homogenous social, educational and economic institutions dominate fringe sub-populations and their marginalized cultural institutions, Indian reality approximates situations in the large number of countries where the ascendancy of the advanced knowledge society remains elusive. (Banerjee & Sato, 1997)

One central task of the knowledge society is to set up institutional processes of: (a) knowledge generation; (b) knowledge reproduction through education/technical training and on-the-job skill acquisition; and (c) re-classification and orderly arrangement of the knowledge system. (Senker, 1997) These three dimensions need, however, to remain integrated in a society's organizations and institutions. Assuming initially that the second dimension of knowledge reproduction would largely take care of the other two in a country similar to India, we should focus on the centrality of skill-development, often described as vocational training and related issues of schooling.

The assumption of the centrality of skill generation can be defended from several points of view. First, the key resource of any knowledge society is a well-educated and well-trained work force. In a populous country with largely unemployed as well as unemployable labour force this key resource is undermined and attention must be paid to promoting the reproduction of skills in all sectors and at all levels. Second, an immense potential workforce which acquires newly generated knowledge (the first dimension) has the capacity to adapt new knowledge and produce

further innovations, thus setting in motion not only a trend toward knowledge acquisition but also a dynamic in which knowledge both spreads and grows. Finally, as a population acquires (either formally or informally) new information and abilities, both market demands and institutional directions have the potential to set the order of precedence or of importance amongst the skill set constituents obtained from the old and new skills.

Once this centrality of skill regeneration including the generation of skills in emerging areas is accepted, a corollary prescriptive policy for the Indian public sector would be to discover instruments through which such goals could be attained. Leaving aside questions regarding public sector redesign and reorganization, we must confront another important issue: how to ensure private sector participation in publicly supported or initiated programs and projects. In recent years several PPP (Public Private Partnership) schemes have been proposed and developed with mixed results. (World Bank, 2002)

This paper confronts both institutional contexts of knowledge reproduction — the traditional public sector and the PPP — by suggesting the exploration and development of another untapped resource in public domain. We are not suggesting though that the public mode and the PPP modes be abandoned. Our suggestion stands upon the observation that most skills are regenerated in the context of social networks and technology-in-practice. This arrangement, unlike a business enterprise, is not about earning short-term profit. Contrarily, we would argue, it is more often engaged in the formation and enlargement of inter-generational assets. Moreover, it is also dissimilar to a public bureaucracy, since it is primarily dedicated to the principles of self-interest and self-development. As a result, a social network is not a neither a for-profit or a not-for-profit institution, and neither it is a public service.

Hence, we argue here, skill regeneration could be promoted as well as (or possibly better than) in state institutions and PPPs through social networks that are sustained through technology-in-practice. Current public policy has not recognized such social networks. Policy instruments and policy supports have not been provided to such networks. An outcome of this paper should be to draw attention of policy analysts beyond formal public education and training and beyond the PPP. In order to present this perspective, we present a brief theoretical backdrop in the next section, followed by an analysis of the current scenario of vocational skill development that prevails in India. The concluding section sums up the lessons and suggests scopes for both future research and policy interventions.

Background of the concept

The dominant perspective on skill development suggests that a person acts as an investor while spending money and time on learning. Therefore, in a market with the right kind of incentives, rational choice will promote the acquisition of appropriate skills of the quality and in the quantity that are needed. We can call this paradigm, the ‘investor’ perspective. Several variants of this primary model are extant, including options-based models where a person invests in a portfolio of skills with return periods varying widely. Accordingly, learning skills is an investment made by the learner who acts in accordance with the signal from the market and in order to secure the desired incentives. A skill, however, is an uncertain asset and is in need of a market, which fixes price of the asset. Moreover, a “current” market sends signals and sets incentives while skill takes a time to be generated and might, in the subsequent period, be deemed redundant to market demands. Transference of skills or imparting a skill since it is of uncertain value is visited by the proverbial problem of tacitness. Because of this feature, an emphasis on on-the-job apprenticeship training (OJT) prevails over the other non-dominant mode of easily transferable,

theory-laden declarative skill. Moreover, most skill assets produce more through increasing return when put to work in a team. Over time, skills thus develop interdependencies or asset specificities that reduce the attractiveness of an independent skill-asset.

Teams are developed inside a business organization. Hence, most theories have considered wage as the revenue-stream obtained from deployment of skills in teams inside an organization. Consequently, a wage earner should have been considered as an equity owner of a business. However, most theories disregarded that. Skill when earning wages could therefore be separated from the skills of the self-employed. In the latter case, the skill-holder is a micro-entrepreneur. Often, such micro-entrepreneurs resolve the paradox of team formation or of eliciting increasing return by spawning geographic division of labor and forming networks. Through them, the holder of a skill asset could join in teams that are formed through social networks, and such networked skills could prove as attractive as when deployed in a team within a large firm. Thus, our central argument is that social networks of skill-holders as micro-entrepreneurs can, under certain market conditions, prove to be no less productive than internal organization of skill teams in private firms or public institutions.

In such a case, the skill holder is not a wage earner. Contrarily, the skill holder behaves as a quasi-entrepreneur. A network can indeed offer enough incentives to several related skills to form semi-permanent teams. Such incentives can also take care of spillovers that ensure increasing return to the networked assembly. Because of the ease with which a skilled person can make or break network connections (or teams), the switching cost in a network is often lower than it would have been within a large firm. Further, this implies that asset rigidities characterized by asset specificities are likely to be lower in a network than inside an organization.

Skill enjoys increasing returns under most circumstances, when in a team or when working alone. Often, a geography of skills appears because of this positive externality of increasing return. To recall, rather often networks represent geographies. In other words, varieties of skill specializations may appear and be sustained as varied teams of social networks in a specific location or across multiple regions. Coordination remains the most crucial aspect in within-team and across-teams productions. For a Chandlerian, the manager of a firm performs the task of coordination, whereas in a pure market with arms length transactions, price itself coordinates. We argue that networks are coordinated through neither pure price signals, nor through managerial action. In contrast, coordination in a network happens through joint investment for the developments of future assets. This is major contention. We argue that, in a network, pipeline assets or future assets are not simple reproductions of current assets, and the type of assets as well as the quantity of assets that will be produced within a network are the result or the output of “collective” investment by the “current” asset-holders. Finally, the extent to which a current skill-holder would invest in future skills or in other words, the extent to which the “collective” pool would be formed currently is determined by the interactions of a person with the ‘current’ market or social institutions.

Such an argument differentiates us from the “investor” perspective. The latter takes into account investment by individual investors for their own future returns from learned skills. Contrarily, we argue that the current investor in skill acquisition is often a person other than (as often not as a parent) who receives no returns from that future skill. As well, a network member is almost always in need of a complementary asset/skill, and this member along with other similar entrepreneurs in need of complementarities may invest in a young person (from another household, perhaps) by way of providing apprenticeship or training and by means of enabling

potential joint production. As a result the “selfish investor” model becomes broadened in our proposed framework. In this network, a member is rational but not a selfish individual, and in order to behave rationally this network member requires following a norm of coordination, as practiced by the network and as reflected in the formation of the collective pool.

The collective pool acts as a hostage. Under or non-investment by a member can be threatened by a potential expulsion of that member from the network. This collective pool is basically an arrangement through which a person can instruct an apprentice in a skill yet to emerge. Such a pool, somewhat similar to a patent pool, is a repository of rights to get trained (similar to rights to licensing in a patent pool). This is not therefore an assemblage of physical capital as understood by the organization of a large firm.

Summarizing from above and drawing inferences, we observe that, while schooling the under “investor” paradigm requires the apprentice to invest, the network-collective invests for individual(s). Further, while the investors’ paradigm requires the apprentice to make a choice of schooling based on market signals and the information on incentives, choice in the network mode is made not by apprentice and incentives are substituted by considerations on nature of future asset. That future asset must be expected to be in complementarities with other assets in future.

Schooling can therefore be institutionalized around fees-for-service schools. The extent to which public funding in schooling could be substituted by fees paid by investor- students can therefore be formulated through contemporary policy discussions about the PPP; in fact, such fees alone can provide returns to profit-seeking private agencies. However, apprenticeship being based on a non-fees mechanism that is interested in raising complementary assets in the apprentice, cannot fit into this PPP scheme. Indeed, apprenticeship is based on a sophisticated PPP model, much different from the cash return model of the schooling PPP schemes.

Our conjecture, based upon above argument, is that public policies to groom and nurture apprentices through institutions modeled after schools would fail. A school is farthest from the institutions of learning based upon hands-on peer-led training. We speculate further that apprentices are best groomed in the OJT mode. Since, however, none of the public sector skill development organizations in India offer apprenticeship-based instructions, we could expect a rupture between formal-organization based instructions and network-based informal instructions. Output from the former would possibly not be inducted into as assets into the social networks of production, and the output from the latter would possibly suffer from insufficient exposure to modern sciences while being inducted into the social networks of micro-entrepreneurship. As a result, both the formal system of production and the informal networks would suffer from problems of poor or weak skill assets.

Data on the Indian experience with the formal and public mode of schooling-type instructions are available; however, data on the informal social network is inadequate. The next section briefly reviews the scenario, and indicates that the data supports our conjectures. As we shall observe now, the public vocational instruction system has not been satisfactory and, more importantly, reform of the Indian public system cannot be undertaken using the schooling type of institutions. Contrarily, we would contend, based on our conceptual argument, that vocational instruction needs to be based on the institution of social networks of micro-entrepreneurs. Finally, we would also observe that such a reformation would unlock the public system from its current commitment, while opening ways for novel modes of PPP.

The State of Indian Vocational Instruction

The mismatch in India between the outputs from formal instructional system and the demand in the market has been widening, resulting in a rising number of both unemployed and unemployable. (Biswas & Raj, 1997) Determining the exact number of such persons is very difficult because a large proportion of job seekers, especially those who are in the rural areas and are not formally educated, remain mostly outside the purview of the statistical system. We will therefore refer to indicative data, and one indication is offered by the Indian system of Employment Exchanges, where job seekers register in order to get interview calls from potential employers. A large number of private organized and un-organized employers, however, do not hire through these exchanges, and some employed persons looking to change jobs also register with the exchanges. Table 1 presents glimpses into job-seeking population. The data is from the live register of these exchanges. The marginal decline in the number of registered persons indicates that these exchanges have failed to act as the pool of labour market resources.

Table 1: Registered Job Seekers at Employment Exchanges

Year	Total registered, millions	Women registered, millions
2002	41.1712	10.6495
2003	41.388	10.7523
2004	40.4577	10.6056

Source: Employment Exchange Statistics, 2006. GOI

An important aspect of the job seekers is the age profile of the registered population; 22% of those registered are 19 years of age or younger; 50% are 20 to 29; and 23% are between 30 and 39, revealing that nearly three quarters of job-seeking population are under 30. Moreover, the percentage of educated job seekers has increased from 67.5% at the end of 1995 to 72.3% at the end of 2004. This can be contrasted with the placement record, where only 43% of the total placement has ten or more years of schooling. In fact, over the years the importance of the Employment Exchanges has fallen drastically: in 1996, only 2.7% of registrants were successfully placed and, by 2004, the provisional figures suggest that only 1.8% were placed.

Most of those registered, however, are non-technical. In 2004, the category “professional technical & related workers” constituted 8.7% of the total number registered and, similarly, the category “production & related workers transport equipment labourers” constituted 10.7% of the total, while the category “workers not classified by any occupation” constituted 72.5% of the total! Undoubtedly the placement market for technical hands is organized outside the Employment Exchanges. Our field observation suggests that most industrial firms including small enterprises bypass these Exchanges, and employ technical workers through network-references. The economics of networking is plainly superior to the formal Employment Exchanges. A network can provide information on the quality of skill or of technical knowledge an individual possesses, while the Exchange can provide only a “certificate” from the formal school system. In other words, the certificates from formal technical schooling provide little reliable information on the quality of acquired skills and, as a result, the placement market is linked with social networks of skill development because this latter alone can reduce the transaction costs and hazards.

Placement refers to the clearing of a market supplied by the output providers from both the formal schools and the informal social networks. The extent to which the output from the formal technical schools is cleared compared to the success of the networks is indicative of the relative acceptability of these two institutions. Further, as a more acceptable institution, the networks can very possibly provide more effective instruction and can therefore effect a better skill-asset generation.

Another source of data, the NSSO (National Sample Survey Organization), indicates that attractiveness of the vocational knowledge is poor. Table 2 shows the employment status of persons with formal vocational education. Only 7.6% in rural areas and 23% in urban areas of workers in the age group of 15-29 years and with educational level “middle school and above but below graduate” could get employment after securing formal vocational education. This proportion increases with level of education within this group; for example, the proportion is highest for those with a general educational level of “diploma/certificate course” of technical schooling, and in the rural male group 62% of those with a “diploma/certificate course” background have received some kind of formal vocational training.

Table 2: Employment status in number per 1000 persons in the age group 15-29 with middle school level general educational and above but below graduate who received formal vocational training by broad activity status

Broad activity status	Rural male	Rural female	Urban male	Urban female
Employed	28	48	72	158
Unemployed	96	174	166	240
Not in labour force	14	13	42	31
all	27	23	65	47

Source: Employment and unemployment, NSSO, 2004

Formal training in “electrical and electronic engineering trades” attracted maximum demand with 27% of rural male receiving training in this area, followed by “mechanical engineering” with 24%, and “computer trade” with 13%; however, only 112 out of 1000 such persons (in electrical & electronic trades) reported that the formal vocational training was helpful in taking up an/another economic activity, often unrelated to the area of training. To continue, only 90 of rural males trained in “mechanical engineering” and 53 trained in “computer trade” reported that the training was helpful – possibly indicating that the skill acquired could not be put to productive use. These types of skills refer to “modern” enterprises; in other words, only a business firm would put such skills to productive use. However, the skill assets generated through formal technical schools prove the least employable in the traditional mode of rural production under the control of networked micro-entrepreneurs; for example, in the “handicraft and cottage based production work” and in “textile related work,” only 8 rural males (3 urban males) and 9 rural females found the former training helpful, and 8 rural males (6 urban males) and 87 rural females found the latter training helpful. The overall rate of “helpful” training per 1000 of trained was 442 among rural males, 225 among rural females, 480 for urban males and 284 for urban females. Table 3 shows age group wise break ups on employment status and the abundance of vocationally educated workers.

Table 3: Employment status and number of persons from rural areas in the age group 15-29 with middle level general educational and above who received formal vocational training and their broad activity status

Age group	Educational level	Per 1000 of training received	Per 1000 of training received	Per 1000 of training received	Estimated persons	Estimated persons	Estimated persons
		Employed	Unemployed	Not in labour force	Employed	Unemployed	Not in labour force
15-19	Above middle but below graduate	11	54	7	59406	9192	149269
20-24	Above middle but below graduate	29	129	49	114526	11101	28906
25-29	Above middle but below graduate	37	100	68	120091	5631	2335
15-29	Above middle but below graduate	28	96	14	294024	25925	180510
15-29	Graduate & above	14	31	8	19964	7228	6325
All		28	82	14	313987	33153	186835

Source: Employment and unemployment, NSSO, 2004

This category “helpful” often relates to such matters as the trained person being able to secure cheaper bank credit because she had a certificate of training, or being able to secure a job under any technical head through the Employment Exchange under the “technically trained” category – therefore, formal technical schooling generates assets that are somewhat “helpful,” but are not necessarily related to economic productivity. Assets are generated in these public-supported formal technical schools through both private investment made by the student and public investment made by public funding (in a few cases, private funding as well). The “helpful” category indicates that such assets fail to produce on their own or are not complementary to other productive assets. No wonder, then, that potential students are reluctant to invest their time, energy and money.

The Second National Commission on Labour pointed out several kinds of mismatches between the public technical school system and the market for assets. Among others, the Commission identified “lack of flexibility in engaging trade apprentices within the same trade group”, “inadequate coverage of skill”, “mismatch between demand and supply” and “inadequate facilities for training”. The public training system has two major streams: the Industrial Training Institute (ITI) and the Trade Apprenticeship Training (TAT). There are also several private-provided Industrial Training Centers (ITC). The current number of it is (1787) is far below the number of ITCs (2804). The average ITC, however, is much smaller, with average intake of 107

while the ITIs have an average intake of 207. The capacity of ITIs, especially for a few trades, remained unfilled. Over one-fourth (60,000) remained unfilled for last few years. ITCs offer few trade training programs, often limited to non-manufacturing skills including commerce, hospitality, information technology applications, and others. Typically, ITCs do not invest in training and therefore machine tools or similar capital equipment such as medical instruments have been left out. It is, on the contrary, have many established facilities with capital equipment. Consequently, trades offered at the ITIs are numerous and are industrially oriented. The ITCs cannot substitute the ITIs.

The other mode of training is provided through the publically supported TAT. These were launched in 1959 as the National Apprenticeship Scheme and later TAT was given a mandate in legislation, The National Apprentices Act. In contrast to the ITIs, where a person receives training after 10 years of schooling, TAT provides training to graduate engineers or licentiates in engineering. Currently this scheme also provides training to students after 12 years of schooling. TAT also made another departure. ITIs provide formal training with emphasis on the workshop; TAT makes it obligatory on the part of employers both in public and private sectors to engage trade apprentices for OJT. The duration of apprenticeship varies from six months to four years. Experience over the years has shown that nearly all private firms do not accept apprentices, and even when apprentices are engaged they are not provided OJT. There is no fit between private firm and the apprentices. Naturally, very few apprentices get absorbed in the firm providing training. Even under the central government, the number of apprentices being accepted each year has been falling, from 46,691 in 1997 to 36,719 in 2002, for example.

TAT offers training in 138 trades, a few of which are in relatively higher demand. The trade “fitter” has an intake capacity of 39,472 with 27,525 persons undergoing training in 2002. Similar high volume trades are “electrician”, “turner”, “mechanic (motor vehicle)”, and a few others. Most trades have, however, few intake seats and equally few persons being trained. For example, “carpenter” has an intake capacity of 2318, nearly half of which are unfilled. Only one-third of the intake capacity of the trade “mason” gets filled; only 1% of the seats under the trade “sports good maker (wood)”, less than one-fourth of the trade “mechanic maintenance (textile machinery)” or in “weaver”, about 8% in trade “knitter (hosiery)”, for example, gets filled. In fact, in all trades where social networks enjoy dominant productive capacity vis-à-vis the organized factory mode, there are very few apprentices. The number of “weavers” and “sports good makers (wood)” in the country is nearly 1000 times more than the intake capacity.

The Indian statistical system does not keep records of productive engagement of persons with technical skills in social networks of micro-enterprises. However, gleaning data from other sources, such as the number of weavers (nearly all self-employed), we can infer that the informal social system not only produces goods such as handloom textiles, but simultaneously these informal micro-systems generate relational and complementary assets of skills in weaving and related trades. Generating assets by the informal system is a mode of its expansion. This system of internal generation of assets can be viewed as an investment in the future.

Contrarily, the public (and also private) formal schools fail to integrate with the system of production. Nearest to integration could have been the apprenticeship schemes. Such schemes have been successfully integrated within the factory modes of production in Japan and Germany, especially. The Indian factory system seems to care little for internal or co-generation of skill assets. The employment records, based only on the Employment Exchange data, of both the ITI-trained and the apprentices from the TAT are extremely poor. Table 4 shows clearly the non-fit between required assets and produced assets. More importantly, the factory system has not participated in this generation of assets.

Table 4: Employability of persons from formal technical schools

Year	Ex-ITI employed through Emp Ex	Ex-apprentice employed through Emp Ex	Ex-ITI registered in Emp Ex	Ex-apprentice registered in Emp Ex	Register to placement % of Ex-ITI	Register to placement % of Ex-apprentice
1996	12297	2524	1114856	105584	1.1	2.4
1997	14177	2719	1218401	111529	1.2	2.4
1998	9422	2590	1341378	134328	0.7	1.9
1999	12425	2677	1409788	145612	0.9	1.8
2000	5050	1450	1380068	146689	0.4	1.0
2001	4630	1988	1382648	154013	0.3	1.3

Source: Trade Apprenticeship Training in India. GOI. 2005

Skill asset generation in the Indian factory system is definitely separated from both types of formal technical training, the ITI and the TAT. In fact, if we exclude the number of technically trained workers absorbed/employed in public sector enterprises from this meager number of employed, as shown in last two columns of Table 4, we observe that private business enterprises did not employ more than a handful. Moreover, since 1996, the attractiveness of trained workers has continuously deteriorated.

Skill asset generation is related to several important factors. The first is whether the trained worker would provide business with some unique and not easily acquired assets. In order for this to happen, the business must be the initiator, and the selector as well as the trainer particularly for OJT. In case the competitiveness of the industry does not require the firm to selectively groom the skills and, more importantly, if the prevailing economic institutions discourage through disincentives such grooming of specific skills, a business firm would not take up this task.

The second factor relates to labour turnover and the length of employment. Unlike the practice in Japan, an Indian employer is not dedicated to life-long employment and lay-offs are common. Employee turnover in standardized skills is very low though. It appears then the employer, in lieu of grooming specific assets, takes the required workers from a common pool. This common pool consists of the laid-off, the unemployed, the freshly trained and the traditionally trained. Since the employer does not appear to distinguish among these types of workers, and since highly specific skills are not being demanded by these employers (while the German dual system hones the skill specificity), we can infer that demand from business firms is very weak. So far, the Indian government took the supply-side perspective. The employers association did not participate except in special cases in the formulation of the curriculum, or in sending experts from the factory to train/instruct and in the OJT-modes.

It appears then that the disincentives to business firms in grooming specific skill-assets have deep roots. The changes required would involve competition policy, globalization and global benchmarking. Since it would take years to establish new institutions, and since the cost involved appears to be high, we could propose short-term and cheaper solutions.

Social networks as the platform

The dilemma faced by the public system of formal technical training is that its supply side perspective has no takers. The suppliers are not sure about what the kind and quantity of skill assets are needed in the business market. This market does not have the right mechanisms to send signals and, more importantly, it would take years to respond to market demands. As well, generation of assets within the business premises would cost the business dearly since the current value chains that most businesses employ are low and can be satisfied through drawing upon from a common undifferentiated pool.

In contrast the social networks of production, prevalent among the traditional craft-based systems and among the service groups (such as among the plumbers and the auto mechanics) are skill intensive, often employing low fixed capital investments in machinery. Regeneration of skill assets in these groups is also an essential form of regenerating the capital stock. Continuity of craft production and service provision services can be ensured only through such generation of skills.

No less important are the great variations in skill assets. Take metalworking, for example: In India there are possibly more than one hundred finer variations over the simple generic of metalworking. In wood working, silk weaving, bamboo crafts and carpet weaving, there may be more than a thousand variations in the choice and preparation of the basic input materials, in the manufacturing/production lay-outs, and in the satisfaction of market demands. Such variations have necessarily generated a very large number of unique, differentiated unique skills; more importantly, since process lay outs too have large variations the manner in which the skills would form teams vary greatly as well.

This implies that both stand-alone skills and the specificities or the teaming-up aspects of conjoining of skills also vary greatly. As a result, apprenticeship becomes a *sine qua non*, and standardized skills are few. Most generic skills in a social network get highly differentiated as both stand-alone assets and in terms of team formation. In order to ensure the availability of such unique skills to a network, apprentices are accepted and are groomed. This regeneration of skill happens at two sites: simple regeneration of the skill; and the generation of a complementing skill.

A social network, moreover, helps solve other problems that business firms typically face. Grooming of skills reduces search costs to near zero. Transaction costs and hazards are also reduced. Kinship and the family bonding likewise reduce the transaction costs and employee turnover is near zero. The master knows quality of skill assets that a groomed hand possesses beforehand and, as a result, the master does not suffer from the “lemon” problem. Finally, investment in apprenticeship is borne most often by members within the network, who not necessarily belong to the same family. The non-family master has the advantage of grooming a complementary skill-asset with least search cost, the least transaction cost and the least problem of quality.

There remains, however, a problem. Skill assets that are most often regenerated have few or no inputs from modern machinery and technological knowledge. The public system has made the entire investment of capital machinery, infrastructure and of trainers in the formal schools. The traditional social networks have been completely excluded. In fact, public investment in even the traditional crafts does not employ the social networks as the platform of resource generation. Funds for traditional skills get diverted to non-network urban organizations or rural non-governmental organizations. The cleavage between the networks and public support systems has not only marginalized the traditional skill assets but, more importantly, this system has also marginalized the modern business firms’ skill bases.

Social networks can and should serve as the platform for the generation of skill assets and also for the productive employment of these skill assets without delay and without burdensome search costs, etc. It seems plausible that this platform might also be utilized for public investments. The public fund for new inputs of knowledge and for new special purpose machinery including for infrastructure could be channeled through network platforms. Such platforms have the best resources to manage public resources. Most importantly, the administrative costs of public funding, when managed by network masters, should be near zero and leakage of funds would also be reduced to the minimum when networks manage them.

Conclusion

We can conclude by suggesting that the funds and the knowledge resources for technical and vocational education could be handed over to several networks of crafts and other technical skills. Through this we can deploy a novel PPP initiative and more importantly we can engage the excellent managerial skill of the nodal traders or master crafts persons in this huge task of vocational skill enhancement. Individual members from these networks can often be used as the resource person responsible for dissemination of contemporary and modern scientific and technological knowledge. Any public investment to augment the generation and deployment of skill assets with the members of a network qualifies excellently for a new and possibly novel understanding of the PPP model. The participation of the private with the public thus takes place, in our suggestion, at a level different from the typical and dominant technical training models. Finally, trainers from within the network are also often the employers or are the venture investors. The mismatch between training and market demands can be satisfied perhaps the best through this proposed modality. Of no small importance, in this mode, costs are lowered, better assets are generated and the time lag in deployment of assets gets reduced.

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