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The Interface between Employment and Education in India: The Need for a Discourse

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In post-independence India, the discourse around (higher) education hardly includes its organic link with 'development'¹. On the contrary, issues of industrial development, employment, and education have become so disengaged and compartmentalised, both in theory and praxis, that practioners of one hardly take time off to reflect on the consequences of their policies and strategies for other fields of activities. This disengagement at all levels (policy, research, practice) has led to a heavy toll, in that, through all these years after independence, we are still left with large numbers of formally illiterate persons, large numbers of non-employable but literate persons, large numbers of semi-literate but professionally untrained persons, an economy that has experienced premature tertiarisation, where industrial expansion is limited, employment generation is low, and where hardly any substantive R & D takes place. The move towards concentration of employment in the tertiary sector explains to some extent, in our view, the disproportionately excessive enrolments in humanistic and liberal arts courses. We agree with Irizarry (1983) that:

The orientation of the students toward these programmes, then, is not entirely due to the persistence of traditional preferences for so-called desk jobs or professional white-collar careers. In a way they respond to the structure of occupational opportunities in the economy ... Paradoxically,

the probability of employment in an occupation matched to a person's studies is higher for graduates of this type of program than for those prepared in industrial or even agricultural production-related technical programs (Irizarry 1983, 177).

The visible disjuncture between education and employment calls for an examination of the nature of discourse (or more correctly, the lack of discourse) between what passes for higher education in the country and the ability of the economy to absorb the products of higher education through the creation of 'quality' employment.² This paper, divided into three sections, takes a broad sweep on the theme of economic development and higher education. It begins with a discussion of the employment situation in the country in the most recent decade (the 1990s), based on the reports of two task force committees set up by the Central Planning Commission (Planning Commission 2001, 2002). An important observation made by both the committees is the increasing incidence of unemployment among the educated, which in turn made the committees examine the issue of the misfit between the products of higher education and the nature of employment being generated in the economy. We take a critical look at the nature of discourse that the committees have engaged with on this theme. The superficial nature of engagement and the inability of both the committees to come up with substantive issues relating to the theme of the interface between employment and higher education contrasts sharply when compared with the discussion that took place in the colonial period and the attempts that were made then to put in place a semblance of employment-oriented industrial education. We focus in particular on the Madras Presidency, since, more than any other province, the Madras Presidency had attempted to initiate (in the face of opposition from the Imperial Government) the process of industry-education interaction.

In the second part of the paper, therefore, we reproduce a set of observations from different official records to highlight not just the state of higher (read technical/industrial) education in the early part of the twentieth century (which we know was abysmal), but, more important, our purpose is to stress the point that the level of discussion

and the range of issues with which officials attempted to come to terms with, even at that period, was simply remarkable. The recurring theme of much of official recording at that time and particularly in reports emanating from the Madras Presidency was the need to: (i) forge links between education and caste-based occupations; (ii) enhance skills in existing occupations and, particularly, among artisan classes engaged in these caste-based occupations; and, (iii) raise the standards of general as well as specialised education to enable modern manufacturing industries to be established and developed. What strikes us as truly remarkable is the level of awareness, at that time of: (i) the enormity of the agenda to be implemented for beneficial impacts to accrue; (ii) the crucial role of the state (both imperial and provincial) in coordinating activities as well as different sets of people; and, equally important, (iii) the realisation that private manufacturing bodies need to be made responsible for taking on students as apprentices either through persuasion if not through legislation.

The concluding part sets out the issues that need to be researched before we even attempt an outline of a policy.

Employment-Unemployment in India: Dimensions and Issues at Stake

In the space of just two years the Central Planning Commission of India constituted two committees to examine the 'problem' of the growing incidence of unemployment and underemployment in the country.³ Our purpose here is not to discuss the politics of why, within a space of two years, we have had two official committees set up by the same department to examine the same theme. Rather, for us, the important aspect in both the reports is the very considerable emphasis that has been placed on the lack of interface between employment and education. In the process, both the reports have expanded the definition of 'quality' of employment to include the 'skill' component of those employed and of those returned as unemployed.

Both reports emphasise the fact that there has been a steady decline in the job-creating capacity of the economy, which decline has accelerated since 1993–94. The reports, for example, point out that the

employment growth fell to 1.07 per cent per annum (between 1993–94 and 1999–2000) from 2.7 per cent per annum in the past (that is, between 1983 and 1993–94) in spite of acceleration in the growth of domestic product from 5.2 per cent (between 1983 and 1994–94) to 6.7 per cent (between 1993–94 and 1999–2000). This in turn means that the capacity of job creation per unit of output went down about three times compared with that in the 1980s and early 1990s. The organised sector's employment-generating capacity (measured in terms of employment elasticity) came down to near zero; in the public sector, it has been negative in most cases. Thus, the major source of employment generation and for labour absorption is the unorganised sector of the economy, whose employment weightage is as high as 92 per cent, that is, of the total employed labour force (Planning Commission 2001, 34 and Planning Commission 2002, 2, 26).

On examining all major sources of information, the committees found that the rate of unemployment in India has increased significantly between 1993–94 and was above 7.3 per cent in 1999–2000 compared with 6.0 per cent in 1993–94 on Current Daily Status (CDS) basis.⁴ The number of unemployed has increased from 20.13 million in 1993–94 to 26.58 million in 1999–2000. Nearly 74 per cent of the unemployed are in rural areas, while 60 per cent of the unemployed are educated (higher secondary and above).

A point that both the committees stress is the fact that an unemployment rate of 7.3 per cent should not be read as implying that those employed have 'decent' jobs; on the contrary, the committees have extensively discussed the phenomenon of the 'quality' of existing employment and of that being generated in the economy. One dimension of this 'quality' is the level of income that the employment provides. That a large part of the employment generated in the economy provides very low levels of income is very evident from the fact that whereas unemployment even according to the most expansive measure, namely, CDS measure, was only 7.3 per cent, the percentage of population in poverty was as high as 26.1 per cent. Thus, being employed need not necessarily enable an individual/household to rise above the poverty line.

Another dimension of the employment-unemployment problem is the serious mismatch between the expectations of the new entrants

to the labour force and the quality of employment opportunities available to them as revealed by the very high unemployment among certain groups, especially among educated youth. 'Given the high expectations of the increasingly better educated new entrants to the labour force the employment problem for this group cannot be addressed by creating more jobs of the same low quality that exist at present. What is needed is a strategy that will create more high quality jobs that generate higher levels of income' (Planning Commission 2001, 41). This is despite the fact that overall educational levels of the labour force in India are very low. About 44 per cent of all workers in 1999–2000 were illiterate and another 22.7 per cent had schooling only up to the primary level. 'If we define the minimum level of education necessary to function in a modern economy as schooling up to the middle level, then only about 33.2 per cent of the labour force had schooling of that level and above. The percentage was higher at 57.4 per cent for the urban labour force, but it was correspondingly worse in rural areas, with only 25.4 per cent for the rural labour force meeting these standards' (Planning Commission, 2001, 124).

The regional disaggregation of unemployment data raises further issues of concern. The unemployment rate (on the CDS basis) is higher in high literacy states, almost 21 per cent in Kerala; next is West Bengal with 15 per cent, followed by Tamil Nadu at 12 per cent of their respective labour force. Further, in each of these states, the incidence of unemployment among youths is even higher and more so for females. Among female youth in Kerala, the unemployment rate is as high as 46 per cent, in West Bengal it is 39 per cent, and nearly as high in Tamil Nadu. Once again, this feature of higher incidence of unemployment among youths needs to be juxtaposed against the positive aspect of increasing levels of education, which is discernible among the younger age groups of the population⁵.

The statistics discussed above relate to general education, which is not the same thing as possession of 'marketable skills'. At the same time, it is not easy to quantify the level of skills in the labour force, since such data are not readily available. In 1993–94, however, the National Sample Survey Organisation of India conducted a survey where information on the possession of 30 different marketable

skills by persons in the labour force was sought. The results of this component of the survey are summarised in Table 11.1. The skilled percentage is evidently very low; hardly 10 per cent of male workers and 6 per cent of female workers in the rural areas possessed specific marketable skills. The urban areas returned relatively better figures, but still abysmally low by any yardstick—19.6 per cent for male workers and 11 per cent for female workers.

Both the committees emphasise the painful fact that the level of vocational⁶ skills in the labour force in India compares poorly with the position in other countries. Table 11.2 shows the percentage of younger members of the labour force (age group 20–24) who have vocational training. Only 5 per cent of the Indian labour force in this age category have vocational skills, whereas the percentage in industrial countries is much higher, varying between 60 per cent and 80 per cent. It may be argued that in developing countries like India, economically productive skills are acquired not only in formal training/education institutions, but also through the family. But, it also needs to be stressed that, currently, the traditional artisan classes are among the poorest, in economic terms, in the country. ‘The developing countries listed have percentages that are significantly lower than the developed countries, but they are still much higher than India, for example, Mexico at 28 per cent and Peru at 17 per cent. Differences in definitions may make comparisons somewhat unreliable but the level in India is clearly far too low’ (Planning Commission 2001, 128).

Table 11.1: Percentage Distribution of Persons by Possession of Marketable Skills: 1993–94

| Possessing | Rural | | Urban | |
|----------------|----------|----------|----------|---------|
| | Male | Female | Male | Female |
| No skill | 89.9 | 93.7 | 80.4 | 88.8 |
| Some skill | 10.1 | 6.3 | 19.6 | 11.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Sample persons | (183464) | (172835) | (106067) | (99283) |

Notes: Marketable skills that are reported by respondents are specified in Appendix I.

Source: India, Planning Commission. 2001. *Report of Task Force on Employment Opportunities*, New Delhi, p.128.

Table 11.2: Proportion Vocationally Trained among the Youth in Labour Force: International Comparison

| Country | Age Group | Vocationally Trained (per cent of those in labour force) |
|-----------------------------|-----------|--|
| India | 20–24 | 5.06* |
| Developing Countries | | |
| Botswana | 20–24 | 22.42 |
| Colombia (1998) | 20–29 | 28.06 |
| Mauritius (1995) | 20–24 | 36.08 |
| Mexico (1998) | 20–24 | 27.58 |
| Developed Countries | | |
| Australia (1998) | 20–24 | 64.11 |
| Canada (1998) | 20–24 | 78.11 |
| France (1997) | 20–24 | 68.57 |
| Germany (1998) | 20–24 | 75.33 |
| Israel (1998) | 18–24 | 81.23 |
| Italy (1997) | 20–24 | 43.88 |
| Japan (1997) | 15–24 | 80.39 |
| Korea Republic (1998) | 20–24 | 95.86 |
| New Zealand (1997) | 20–24 | 63.03 |
| Russian Federation (1998) | 20–24 | 86.89 |
| Singapore (1998) | 20–24 | 66.24 |
| United Kingdom (1998) | 20–24 | 68.46 |

Notes: Only those who have received formal vocational training are shown as trained in this table. To the extent that training and skills in India are acquired through informal methods, including training in the family, the Indian figures are understated.

* Estimates are based on (NSSO Report No.409 on Results of 50th Round [1993–94] Survey on Employment and Unemployment, Table 20) distribution of persons by technical education in India adjusted by labour-force participation rate by sex. The corresponding percentages by sex and residence are rural female, 1.7, rural male, 2.3, urban male, 9.4, and urban female, 17.0.

Source: Same as Table 11.1.

One of the committees (Planning Commission 2001) has devoted considerable space in its report for the discussion of the nature of vocational education and training and the system of apprenticeship available to students in India. Its overall assessment of the situation is as follows:

The actual number of persons expected to enter the labour force (on the 1.8 per cent labour force growth assumption) is about 12.3 million per year. Allowing for underutilisation of seats in training institutions and some overlaps, the percentage of those entering the labour force with some degree of formal training is probably around 1.5 million or about 12 per cent of the gross new entrants into the labour force. While a significant number of the new entrants will be absorbed in various types of unskilled labour in agricultural and non-agricultural occupations, where skills are not needed, the level of skill endowment of new entrants to the labour force revealed by these numbers is clearly not consistent with triggering a process of rapid economic growth and high quality employment generation. The inadequacy of training capacity in quantitative terms is not the only problem. There are also serious problems relating to quality (Planning Commission 2001, 133).

An added feature of the above committee's report is that it has tried to map the 'school-to-work' transition systems in several countries and has even provided an elaborate table comparing the vocational training systems of India and the Republic of Korea (Planning Commission 2001, 146). Our point of departure with the committee's report lies in the complete silence that ensues, thereafter, on how other countries have been able to not only operationalise their 'school-to-work' transition-enabled vocational education and apprenticeship systems but also make it as broad based as possible to cover large numbers of their school-going population—a feature conspicuous by its absence in India. An examination of the systems of vocational education in other countries would, no doubt, enable us to understand to some extent the kind of institutions that have been

put in place and the nature and depth of interactions among these institutions, so that it becomes possible to gauge how smoothly or otherwise students are able to make the transition to work. Much more significant, however, in our opinion, is the need to capture the kind of discourse that preceded these arrangements in these countries in the first place, and the changing nature of the discourse over time. While capturing this discourse for other countries is beyond the scope of this paper, it is our contention that a large part of the explanation for the poor record in vocational training and the almost complete lack of interface between even this miniscule vocational education and employment in India has a lot to do with the absence of any worthwhile discourse on this subject in post-independence India and the consequent inability to set up appropriate institutions and systems to forge such an interface.

Perspectives from the Colonial Period

An official documentation of the need to provide technical education to the people of India can be traced to the Educational Dispatch of 1854.⁷ The Dispatch noted the 'high attainments in English Literature and European Science' by 'some of the natives of India', but lamented that this success had been confined to a small number of persons. The need was expressed, therefore, to extend far more widely 'the means of acquiring general European knowledge of a less high order but of such a character as may be practically useful to the people of India in their different spheres of life' (Dispatch, 368). Following the Dispatch came the *Report of the Education Commission* in 1883⁸ that observed as follows:

It has been felt in all provinces and urged by many witnesses that the attention of students is too exclusively directed to University students, and that no opportunity is offered for the development of what corresponds to the 'modern side' of schools in Europe. It is believed that there is a real need in India for some corresponding course that will fit boys for industrial or commercial pursuits, at the age when they commonly matriculate, more directly than is effected by the present system (*Report* 13).

The commission recommended a bifurcation of studies into two divisions in the upper classes of high schools—one leading to the entrance examination of the universities and the other, of a more practical character, intended to fit youths for commercial or non-literary pursuits. The then Government of India, in its review of the commission's report in 1884, gave the recommendation full support by ordering its implementation. In July 1886, MacDonnell, the Home Secretary, drew a note examining the condition of technical education in the various provinces and the steps taken by each local government to give effect to the 1884 orders of the Government of India enforcing the necessity of improvement in the matter of practical and industrial training. MacDonnell noted that nowhere, except in Madras, had any practical steps been taken in giving effect to the orders in question⁹. Before examining the specific manner in which the Madras Presidency engaged itself with the issue of technical/industrial education, it would be in order to reproduce some of the general observations made in the report of the 'Review of Education' in India in 1886.

It is obvious from what has preceded that, apart from the higher instruction in law, medicine and engineering required for the attainment of University degrees, there is not as yet in India anything like a general or systematic provision of technical instruction... The cry has gone up for more technical instruction... The Department (of Education) has been anxious to respond but has not known how. In default of setting up a system of industrial education of its own, it has been prompt to aid schools established by private effort even when their utility was questionable... A number of the industrial schools and most of the art schools were influenced by a desire to help revive India's antique art handicrafts (such as fine embroidery and delicate handwork in brass). It is evident that these schools did, in fact, resuscitate dying art industries that had been prominent in medieval India. It is equally apparent that this emphasis contributed in no way to the modernisation of the Indian economy or to its industrial growth... The final, if

not very satisfactory, conclusion seems to be that technical education can only advance rapidly in a country where the industries and manufactures are highly developed; that India is not such a country, and that it is a fallacy to suppose that any scheme of technical instruction will open out a royal road to industrial prosperity, the attainment of which depends upon far different conditions (Government of India 1888, 277).

In the rest of this section we give a brief outline of the manner in which the Madras Presidency attempted to grapple with the issue of technical education within the (restrictive) framework laid down by the Imperial Government.

The closing decades of the nineteenth century and the first decade of the twentieth century saw intense activity in the Madras Presidency in the form of debates, discussions, memoranda, conferences, and resolutions covering the following issues:

1. The need to bring the scheme of technical education into relation with the industrial needs and conditions of the country.
2. The insulation of the artisan classes from any form of formal instruction in schools that could be classified as industrial or technical, and, therefore, the inability of the system to tackle 'the real problem of industrial education'.¹⁰
3. The extreme illiteracy of the vast majority of the population, which meant that fundamental or necessarily preliminary instruction had to be imparted before going on to specialised technical instructions.
4. The need for government intervention in fostering industrial development and embarking on a series of industrial experiments worked on a comparatively large and commercial scale to make industrial and technical education really take off.¹¹

In 1897, Alfred Chatterton took over as Superintendent of the School of Arts in Madras. Initially, at his own expense, and later with the help of a small grant from the provincial government, Chatterton began experiments in the manufacture of aluminum vessels, which subsequently became an integral part of the School

of Arts. Coppersmiths and bell-metal founders were employed; indigenous ways of working were initially adopted with changes being introduced very slowly and at convenient opportunities. From the outset there was a good demand from the military authorities and from Europeans for aluminum vessels; further, by establishing agents and subsidiary workshops at various places the Indian demand was also stimulated.¹² By 1899, so much progress had been made that the government applied to the Secretary of State for permission to employ Chatterton for a term of three years in furthering the progress of technical and industrial education in the Madras Presidency.

A Conference on Technical Education was held at Simla in 1901. The conference came down heavily on the lack of organisation and the want of purpose of the then existing industrial schools in the country. The Government of India therefore decided, in 1901, to appoint a committee to visit the different provinces in connection with the institution of industrial schools to examine what had already been done, with what measure of success, and to confer with local educational officers and others on the best means of establishing such schools (Government of India 1906). The Government of India wanted the local governments to examine the lines on which a practical beginning could be made.

In a letter to the local governments, generally endorsing the conclusions of the Simla conference on the subject of the schools of art, J.P. Hewett, Secretary to the Government of India, Home Department, made a specific reference to the 'successful establishment and extension of the aluminium industry in Madras' by Chatterton.¹³ Hewett acknowledged that, but for the development of the aluminium industry, the articles formally produced by the workmen might have been supplanted in the Indian market by articles manufactured in other countries. But, Hewett was quick to add that the government considered work of that nature to be outside the scope of the education department.

If any local government feels that special efforts are required to organise or to help any particular industry from the mercantile point of view, they should either invoke the assistance of private enterprise or should arrange for its development by means of special officers not connected with the Education Department.¹⁴

Chatterton, in his comments on Hewett's letter, pointed out that the industrial condition of the Madras Presidency was such that little good could be done in technical or industrial schools unless there were industries in the presidency which would give employment to those who had passed through these institutions. The mercantile communities of the presidency were merely middlemen and it was not likely that they would risk capital to build manufacturing facilities, which, if successfully established, would be largely at the expense of the foreign trade of the country. Under the circumstances, he argued, it was only to the government that labour could turn to for help, and government could render them effective assistance only by becoming pioneers in new lines of business.¹⁵

It was proposed that the manner to promote industrial development in the presidency was to sever technical education completely from general education, to create a separate department to deal with the promotion of industries by experiment and advice as well as with the imparting of theoretical instruction in technical schools and colleges, and to place the department under an officer styled the 'Director of Industrial and Technical Inquiries'. The Government of India in their Dispatch, while recommending the creation of the above post, however, added: 'We have full confidence in Chatterton's qualifications to discharge such a task. At the same time it appears to us that as the appointment is being created mainly on grounds of a personal nature it should at present be sanctioned provisionally for the time of Mr. Chatterton's incumbency, the question of its permanence being left for future consideration when he vacates it. It will then be possible to determine in the light of further experience whether such an appointment is permanently required or not'.¹⁶

On the receipt of the Secretary of State's sanction, Chatterton was appointed 'Director of Industrial and Technical Inquiries'. He was directed to follow the lines on which he had been working, since he was placed on special duty in 1900 for the purpose of subjecting to a detailed examination each of the more important industries of the presidency and indicating the lines on which improvement might best be effected. He was, in addition, entrusted with the inspection of 18 technical schools in which instruction was

given in engineering subjects, in wood and metal work, and in the preparation of textile fabrics.

The satisfactory results achieved by Chatterton in these directions convinced the Governor-in-Council in Madras of the desirability of enlarging the scope of his work. In order to determine the lines on which action could be taken, a conference of persons either concerned or interested in the conduct of the chief industries of the presidency was summoned and met in September 1908.¹⁷ The deliberations of the conference took shape in the form of 68 resolutions. On the cardinal question whether state intervention was desirable or necessary in fostering industrial development in a country in which private industrial effort had hitherto been either spasmodic or practically nonexistent, the opinion of 35 out of the 38 gentlemen who composed the conference laid out that, subject to the restrictions therein specified, the government could undertake as a pioneer the introduction of new industries or industrial processes for the purpose of training students or apprentices or for demonstrating that such industries could be commercially viable. The Governor-in-Council recognised the impossibility of taking immediate action regarding all the subjects dealt with in the recommendations, but considered that there were some directions in which immediate action was possible and desirable. The most important of these were the transfer of the industrial institutions from the control of the Education Department to that of the Director of Industries, the formation of a bureau of industrial information and an industrial museum, the establishment of weaving institutions under the superintendence of experts, and the establishment of a leather trade school under the supervision of a leather school, among others.

The imperativeness of simultaneous action on several fronts for technical education to be effective, including the need to contend with caste and caste-based occupations, comes out quite clearly and succinctly in the overview note prepared by the then Director of Industrial Education for consideration by the Imperial Government.¹⁸

An examination of the facts concerning the chief local industries in each district, the list of schools that could be classified as industrial or technical schools, the subjects

taught in these schools and the numbers of the different classes of the community attending them, revealed that the total number from the community classed under 'non-Brahman caste Hindus' (whose hereditary occupation was an industry) reported to be studying in industrial and/or technical schools was 983. If from this number was taken away those studying commercial subjects like telegraphy, music and drawing, those in carpentry classes in schools (which were manual occupation classes), and also those in the Reformatory school, the analysis of the remainder made it quite clear that there were not 100 pupils in the whole Presidency who were at present receiving instruction in the methods and processes of their hereditary caste occupations or in the principles underlying the same. So that I think we may say that the existing schools while doing useful work in other ways...are doing nothing towards what I call the real problem of industrial education.¹⁹

The note by the Director of Industrial Education also emphasised the need to provide industrial education on three distinct lines: (i) for operatives in modern factories, mills, and workshops; (ii) for indigenous artisans; and, (iii) for non-Hindus and those termed the 'depressed classes'. In the case of operatives working in the modern industries (then represented by railway workshops, cotton mills, and a few engineering shops), the note stressed the need to strengthen their training. In this connection, it made the following observation regarding apprenticeship:

The cost of education in industrial schools has in the past averaged at least Rs 100/- per day per annum and the work has not been done satisfactorily. I would suggest a system of state apprenticeship by which each boy should be apprenticed to a particular trade for a period of five years, a premium of Rs 100 per annum per boy being paid to the managers of the workshop or factory in which he is apprenticed. The apprenticeship system is an essential feature of the scheme as without legal control over the boys it is difficult to get

them to go through a complete course of instructions owing to the temptation to begin to earn their own living as soon as they have acquired a smattering of the trade they have started to learn. It would be necessary to devise some system of inspection of the apprentices and to maintain a register of firms who might be allotted apprentices under this scheme. If the employers of labour can be induced to cordially support some such scheme I have just outlined, the necessity for industrial schools of this class will practically disappear and I think we shall have solved the problem of industrial education so far as modern industries are concerned, in a fairly satisfactory way.²⁰

As far as indigenous industries were concerned, the note pointed out that the industries themselves were in an exceedingly backward condition and in most cases quite unable to provide any training for the boys other than what they got in the *bazaar*.

For the indigenous industries, therefore, it seems inevitable that we must have recourse to industrial schools, but I would suggest that instruction in each industry should be confined to the sons and relatives of those actually engaged in the industry at the present time. That is to say, we should carry on the industrial schools on a caste basis. The indigenous industries have suffered very severely from competition and it will not help the people still dependent on these industries for a livelihood to have added to these difficulties the competition of locally trained people belonging to the non-artisan castes.²¹

The note felt that a great difficulty was to get the artisans to recognise that they were in need of advice and assistance. It was also recognised that unless an apprenticeship system was adopted, the boys would not remain in schools long enough to become good workmen. The Director was, therefore, in favour of binding an apprentice, who entered the industrial school to work there, to a definite period of time. Simultaneously he realised that as all artisan

boys would be drawn from very poor classes, it would become necessary to either pay them some wages or feed and clothe them. He laid down that the government should attempt to work as far as possible in the latter direction.

From his experience in the aluminum industry, Chatterton opined that there was need to set up industrial schools with a view to producing goods to compete with imports all over India since demand from a single presidency was in many cases insufficient to build up a business. Industrial schools, therefore, were not to be regarded as purely provincial institutions, and it was to be brought to the notice of the committee of experts that where new industrial developments were to be attempted through the agency of schools under a technological department, the whole work throughout India was to be coordinated and organised so that no institution trespassed on the field taken up by another.²²

While Chatterton fully acknowledged the force of the objection to any scheme aimed at exploiting Indian industries with government funds and under government control, he felt that because south Indian industrial enterprise was almost nonexistent, it was useless, therefore, to provide for technical and industrial education, unless, at the same time, efforts were made in some way or the other to improve the status of existing industries and provide for the introduction of new ones. Whilst, therefore, he considered that it would be necessary in the immediate future for government to undertake the working of industrial experiments on a commercial scale, he emphasised that this undertaking was to be regarded as exceptional. He was strongly of the opinion that the College of Engineering in Madras was to be developed and made the centre of all educational effort in the presidency that did not come under the term *general education*. *Private enterprise in the presidency being very weak*, it was Chatterton's suggestion that for the successful introduction of new industries or important improvements in existing industries, it would be necessary for the government to set up temporary special industrial schools analogous to the erstwhile aluminum department of the School of Arts. He was also critical of the College of Agriculture and lamented that the latter had not materially influenced agriculture in the presidency.²³

Given the politics of the time, the Imperial Government was not interested in a consistent and coordinated programme of development involving intense regulation of the economic life of the country, including the activities of the private sector. The Secretary of State not only vetoed the proposals of the Madras government but also abolished the Department of Industries.²⁴

The provincial government's exasperation with the Imperial Government in not being able to tackle the 'real problem of industrial education' comes out clearly in the following notings:

The most characteristic feature of the educational methods now followed in industrial schools is their absolute lack of common or definite objectives. Each school is a law into itself, over an entirely arbitrary range of subjects; each school imparts instruction in a different manner, under different conditions and with a different object in view.

What the present system represents is manual training and if we wish to limit education to this—if in fact, our object is merely to multiply the number of workmen irrespective of quality—the present system is satisfactory enough. But in this case we must also clearly recognise what the limitations are and not imagine that it represents industrial education.

If, on the other hand, our object is to make education truly industrial, to improve the quality of labour, we must also face the hard fact that this can only be done by workshop training conducted under conditions of efficient manufacture, and we must accordingly make up our minds to secure these conditions however repugnant to our preconceived notion they may seem to be.

If we accept the first alternative, then manufacture does not come within our sphere at all, and should be entirely ignored. Most of the existing industrial schools provide a very fair course of manual training, which however, they almost invariably associate with manufacture of a more or less inefficient character.²⁵

On the Eve of Independence and Immediately after: The Changing Discourse on Education

In April 1947, the Government of India set up a Scientific Man-Power Committee whose brief was to,

1. Assess the requirements for different grades of scientific and technical manpower, taking a comprehensive view over a period of the subsequent ten years of the needs of government (Civil and Defence), of teaching and research, and of industry, agriculture, transport, medicine, and other fields dependent on the use of scientific and technical manpower.
2. Make recommendations regarding action to be taken during the subsequent five years to meet these requirements, in particular with reference to:
 - i. the immediate improvement and expansion of facilities for scientific and technical training in Indian universities and special institutions;
 - ii. training overseas in scientific and technical subjects;
 - iii. the promotion and development of scientific and technical research;
 - iv. the utilisation of scientific and technical manpower; and,
 - v. the maintenance of a register of scientific and technical personnel to facilitate their utilisation to the best advantage.²⁶

At its third meeting held on 22 and 23 August 1947, the Scientific Man-Power Committee adopted the report prepared by its subcommittees adumbrating measures for the immediate improvement and expansion of facilities for scientific and technical education, research, and training.

Even a cursory reading of the report, particularly by one not familiar with Indian society, would give the impression that the committee was dealing with a fairly homogenous population either in terms of caste or levels of employment and education. Even so, a significant argument worth reproducing from the report was the necessity felt by the committee to make employers responsible for post-collegiate training.

One aspect of engineering education deserves special attention, namely, facilities for their post-collegiate practical training. Past experience has shown the necessity of some positive steps to ensure that fresh graduates receive an adequate amount of such training. Employers, including Indian mines, metallurgical works, oil companies, as well as Government departments should appreciate that engineering colleges cannot provide them with finished products for ready employment in responsible posts and that it would be to their interest to take in fresh graduates and train them properly. Unless employers are willing to face this responsibility and readily undertake to provide facilities for the practical training of fresh graduates, it may be necessary to introduce legislation making it obligatory on the part of organised industry to do so.

(But) a majority of these firms are at present rather lukewarm in the matter of admitting trainees in numbers larger than required for their own purpose. This situation has contributed in no small measure to a denial of opportunities to suitably qualified students seeking necessary training in industry. We sincerely hope that industry will come to appreciate that it would be in their own interest to take a more enlightened view in the matter. As we have stated earlier in this chapter, it may perhaps become necessary for the government to introduce suitable legislative measures so that it becomes incumbent on every established industrial concern to provide facilities for technical training to qualified young men in all the grades notwithstanding whether the personnel thus trained would be required by the concern or not. We also recommend that in every contract entered into by the government for the purpose of industrial machinery, plant and equipment from foreign and Indian firms there should be provision in the terms of purchase for the training of a suitable number of Indians in the workshops of the firms.²⁷

By 1950, even the battle to make it mandatory for private/public manufacturing units to institute a scheme of apprenticeship was

given up altogether. Instead, there was a distinct change in discourse with the minister of education talking about possible coordination between institutions and field development, contacts between students, parents, and staff, giving of field experience to staff of technical institutions, and lectures by practicing engineers.²⁸

Irizarry's (1983) article on the failure of educational institutions to support development and Verma's (1984) review of India's experience with manpower planning since independence provide a fairly comprehensive picture of the internal disarticulation experienced by India very early on in its attempt to modernise its economy. More significant to us, these articles—in different ways—highlight the inability of the system (even at that time, in the 1960s and 1970s, and more so now) to realise that the problem is more structural and not only because of institutional deficiencies and/or because of misguided policies.

Irizarry's (1983) argument is that the model of industrialisation pursued by LDCs, requiring the latter to be continually dependent technologically on imported machinery and equipment, has resulted in several levels of deprivation for the LDCs. In the first place, this dependence has been not only in organic (physical) aspects but also in intellectual inputs such as blueprints, standards, technological specifications and the know-how for mechanical installations and operations (Irizarry 1983, 172). Second, within the manufacturing sector, the great majority of professionals are not involved in the technical aspects of production, but rather in the manufacturing, procurement, sales and marketing operations of the firm (Irizarry 1983, 176). Third, the structural pattern of dependency hampers the development of R & D capability so essential to break the vicious cycle of dependence. The superiority of the industrialised nations in many areas of production, in productivity and in the development of new products is based to a significant extent on the application of scientific knowledge to the production process. Fourth, an equally crucial observation that Irizarry (1983) makes and which aptly fits India's tryst with industrialisation is the absence of a reciprocal, supportive relationship among government, industry and the scientific-technological infrastructure which includes the universities.

(Such) joint collaboration and information flows between industries and educational institutions are virtually non-existent in LDCs. Hence it is well beyond the institutional possibilities of education and training programmes to provide updated and relevant training for modern industry's man power requirements, for, the scientific and technical base of the corresponding occupational skills are wholly extrinsic to them (Irizarry 1983, 179–80).

Verma, at the time his piece was published in 1984, was a member of the Planning Commission, and understandably, therefore, provides an extremely muted critique of the Government of India's exercise in manpower forecasts. Even so, his conclusions unambiguously record the futility of these exercises, not least because of their failure to come to grips with ground realities. We reproduce a few of the many important observations contained in Verma's paper only to underline the extreme relevance of these observations even today.

Vocationalisation and making education job-oriented have been often discussed but without any significant effect on education decision-making. The lack of man-power planning activity in the liberal arts, science and commerce disciplines also points to the fact that the country's leaders implicitly accept the 'social demand' approach to the provision of educational facilities. It was perhaps felt that the provision of liberal education was an essential safety valve as well as a means of upward social movement in a highly structured society like India, where a degree already commanded social prestige even during the colonial period (Verma 1984, 202).

We have seen that in the entire manpower planning effort, nothing concrete has been achieved in terms of balancing the supply and demand of intermediate manpower whether they are called technicians, craftsmen, service workers or others. Whatever has been attempted has not perhaps had any significant impact on the policy-making of either education or training institutions (Verma 1984, 208).

Except for the first few reports of the committees on engineering, medical and agricultural personnel, which all recommended large-scale expansion of educational facilities in those areas, subsequent efforts did not affect actual educational policy decisions on expansion, maintenance or reduction of educational facilities. The manpower plans as a whole also did not, or could not examine the social and occupational mobility of the population (Verma 1984, 203).

Issues that have taken centre-stage, particularly in the latter part of the 1980s and early 1990s, are best exemplified in the collection of articles in a book titled, *Higher Education Reform in India: Experience and Perspectives*, edited by Suma Chitnis and Philip Altbach in 1993.²⁹ The purpose of the book was to analyse some of the changes in Indian higher education that had taken place in the four decades up to the 1990s and to look at the policy context in which these changes had taken place. In his introduction, Altbach pointed out, among other things, to the sclerosis afflicting the university system of higher education rendering it almost inflexible to reform and innovation. The major efforts to 'open' and reform the organisational structure of Indian higher education had been successful only at the margin in that some alternative models had been introduced—such as the agricultural universities, the institutes of technology, and, autonomous colleges—but these had not made any perceptible dent in the basic structure of the system itself. On the contrary, as Altbach notes, this great monolith of the Indian academic system has steadily grown for over half a century and (despite changes at the margin) has become a permanent feature of Indian society.

To a large extent the question of inadequacy, inefficiency, and vagueness that characterises the whole course of higher education in the country, and the recurring and inconclusive debates that go on from time to time around the theme of how to make 'higher education' more 'practical/job-oriented', and/or how much of 'practical' education is to be introduced into 'vocational' instruction has to do with the larger and more fundamental question of what constitutes 'higher' and, more precisely, 'technical/vocational' education—an

issue that was explicitly raised and addressed to some extent in the colonial period³⁰, but continues to plague us now.

A scathing comment attacking the lack of conceptual clarity on the subject of vocational/technical education made in 1908³¹, which we reproduce below, retains its relevance even today for the sheer complexity of the issues involved and with which we need to contend with if and when we seriously get down to unravelling, comprehending, and concretising our notions of higher education and vocational and technical education.

One of the rarest things in India is to hear a definition of technical work. It is generally assumed to consist of a mixture in no fixed proportion of science and art; the science being mathematical, mechanical and chemical, and the technique—the art—of some kind of work in wood and metals...

The cause of the present state of technical education in India is traceable to the constitution of the Educational Department that is controlled by University men, whose ideas of education are so built upon reading and writing as a foundation that they have overlooked the true relation of technique to science in a country whose industrial training is still in a very backward condition. In every other country, which has reached any industrial eminence, the knowledge of handicraft preceded by many generations, that of reading and writing...

India has yet to recover from an educational impulse in the wrong direction. Reading and writing, which have been of incalculable value for certain classes, are not of use at all and they become positively pernicious when they entice young men away from a sure living by handicraft to the overcrowded ranks of clerical labour (J. Wallace 1908, 141).

What are the Research Issues?

This exercise has taken us on a journey across a range of themes and time periods, but with a running theme, namely, the failure of

the Indian development agenda to forge a link between education (particularly higher education) and development³². The burden of this concluding section is that, research to unravel and understand the interface between education and economic development has hardly begun in India. Even so, the levels of unemployment among the educated has led to demands to reduce the intake and/or, close down particular streams of higher education, declare certain other streams as non-utility courses, etc. At another level, the state in India, faced with the embarrassment of having to answer for large numbers of formally illiterate persons as well as for large numbers of 'out of school' children, has reacted by turning the issue into one of competing resources between higher and elementary education. The excuse of competing resources flies in the face of the fact that, in India, only 7 per cent of the population in the age group 17 to 24 attend higher educational institutions as against 92 per cent of the eligible age group population attending higher educational institutions in USA, 52 per cent in UK, and 45 per cent in Japan (Geetha Rani 2003).

The argument of this paper is certainly not that the subject of higher education has not been academically engaged with; our concern, however, is with the interface that this education has with economic development in general and employment in particular. This interface or the lack of it has merited very little academic attention. The recent controversy around the report, titled 'A Policy Framework for Reforms in Education' submitted to the Prime Minister's Council on Trade and Industry (Ambani, M/K Birla 2000) provides an illustration of the particular nature of our concern. Briefly, the Ambani-Birla report argues, among other things, for an overall change in the approach to higher education, one where there is full cost recovery from students of public higher education institutions and immediate privatisation of entire higher education except those areas of education involving 'disciplines that have no market orientation' (quoted in, T. Ravi Kumar and Sharma 2003, 607). The Ambani-Birla report has drawn flak from all over, particularly academicians. While, very rightly, these critiques³³ have condemned the report and its authors for perceiving higher education as largely a profitable industry, not a single critique that

we have read so far has taken the industrialist-authors to task for not including even a single line outlining industry's responsibility towards the products of higher education. The state in India, for its part, is bent on downsizing higher education through starving universities of resources, freezing appointments, and encouraging commercialisation (Ravi Kumar and Sharma 2003).

It is important to point out in this context that in much of the literature covering particularly the developed as well as the East Asian (miracle) economies, the state has played an instrumental role, either through direct interventions or by facilitating the setting up of appropriate institutions. The issue of state intervention in development is crucial at this juncture given the policies of international bodies like the World Bank. The conditionalities of the World Bank include asking recipient states to pursue uniform policies of progressive withdrawal from several activities in favour of marketisation and privatisation to promote, ostensibly, efficiency and reduce fiscal deficit. Bennell and Segerstrom's (1998) article dealing with vocational education and training in developing countries offers a trenchant critique of the World Bank's shift in educational priorities in favour of primary education. According to the authors:

The World Bank has also been trying to convince governments in developing countries that, in terms of their own resource commitment, basic education should be their top priority and that public expenditure on VET (Vocational Education & Training) should be reduced significantly (Bennell and Segerstrom 1998, 271).

According to the World Bank, (as quoted by the authors):

Vocational and Technical skills are best imparted in the workplace, following general education. The private sectors should be directly involved in the provision and governance of vocational schooling... Enterprise-led training is usually the most cost-effective means of developing worker skills. By comparison, government delivery in most countries has proved expensive and provided trainees with few marketable

skills... Especially in the area of training, governments should focus more on financing and less on production (Bennell and Segerstrom 1998, 272).

In its publication, *The East Asian Miracle*, the World Bank (1993) argues that by giving priority to expanding the primary and secondary bases of the education pyramid, East Asian governments have stimulated the demand for higher education while relying to a large extent on the private sector to satisfy that demand.

Bennell and Segerstrom (1998) expose completely the factual inaccuracy and specious interpretation of events by the World Bank in the High Performing Asian Economies (HPAEs) to bolster its agenda of pushing through privatisation and marketisation. Neither in the HPAEs nor in the mature industrial market economies, the authors note, has there been any withdrawal of governments from their VET systems. On the contrary, their governments are becoming increasingly involved in all aspects of skill training, in particular the development of core competencies among the workforce as a whole and of a wide range of occupational training. The authors are apprehensive that the medium to long-term development costs of failing to support VET could be potentially very serious for LDCs. They find it ironic that the World Bank has turned its back on VET precisely at a time when the development process is becoming increasingly skill-driven, particularly in the traded goods sectors where countries have or could have comparative advantage.

While the Bank extols the virtues of the education development strategies of the HPAEs, these countries are in fact prime examples of where governments have adopted from the very onset aggressive, proactive manpower development strategies. These have been based on a medium to long-term vision of occupational skill requirements rather than short term, market-driven considerations (Bennell and Segerstrom 1998, 286).

It is beyond the scope of this paper to take forward Bennell and Segerstrom's argument by critically examining the nature, level,

and intensity of state participation in higher education in developed countries as well as in countries of East Asia. Suffice to say that the models of state intervention in each of these countries and within each country at different points in time are extremely diverse with equally diverse outcomes; not all of these outcomes have been equally benign for their respective population and certainly not from a gender perspective. The bottom line, however, in all of this is the recognition that, howsoever difficult, states need to constantly engage with the challenge of matching education with employment and, more important, of maintaining the relevance of this match. Economies such as India, faced with growing imbalance between the output of the school system and the absorptive capacity of their labour markets for such types of educated personnel, are attempting to reform the contents of education without questioning their development strategies or development goals. To reiterate a point made at the beginning of this section, at the minimum, we need to conduct a series of research studies to even begin the process of understanding how the existing political/economic/social foundation of our educational system prevents any coordination being achieved with economic planning for employment and redistribution of economic power, in order to be able to come out with a blueprint for discussion and possible action.

**Appendix I : Profile of Persons Having Some Marketable Skill
by Type of Skill Possessed, 1993-94
(Distribution of Persons Per '000)**

| Skill | Code | Rural | | Urban | |
|---|-------|-------|--------|-------|--------|
| | | Male | Female | Male | Female |
| Typist/stenographer | 01 | 3 | 2 | 14 | 10 |
| Fisherman | 02 | 5 | - | 2 | - |
| Miner, quarryman | 03 | 2 | - | 1 | - |
| Spinner including <i>charkha</i> operator | 04 | 1 | 3 | 2 | 3 |
| Weaver | 05 | 6 | 10 | 11 | 8 |
| Tailor, cutter | 06 | 6 | 18 | 15 | 54 |
| Shoemaker, cobbler | 07 | 1 | - | 2 | - |
| Carpenter | 08 | 6 | - | 8 | - |
| Mason, bricklayer | 09 | 5 | - | 9 | - |
| Moulder | 10 | - | - | 1 | - |
| Machine man | 11 | 2 | - | 8 | - |
| Fitter, die-maker | 12 | 1 | - | 6 | - |
| Welder | 13 | 1 | - | 4 | - |
| Blacksmith | 14 | 2 | - | 2 | - |
| Goldsmith | 15 | 1 | - | 4 | - |
| Silversmith | 16 | - | - | 1 | - |
| Electrician | 17 | 2 | - | 8 | - |
| Repairer of electronic goods | 18 | 1 | - | 5 | - |
| Motor vehicle driver, tractor driver | 19 | 11 | - | 27 | 1 |
| Boatman | 20 | - | - | - | - |
| Potter | 21 | 2 | 1 | 1 | - |
| Nurse, midwife | 22 | - | - | - | 2 |
| Basket maker, wicker product maker | 23 | 3 | 4 | 1 | 1 |
| Toy maker | 24 | - | - | - | - |
| Brick maker, tile maker | 25 | 2 | 1 | - | - |
| <i>Bidi</i> maker | 26 | 3 | 7 | - | 7 |
| Bookbinder | 27 | - | - | 2 | - |
| Barber | 28 | 3 | - | 3 | - |
| Mud house builder & thatcher | 29 | 9 | 1 | 1 | 1 |
| Others | 30 | 24 | 15 | 57 | 21 |
| Any skill possessed (Sub-total) | 01-30 | 101 | 63 | 196 | 112 |
| No skill Possessed | | 899 | 937 | 804 | 888 |
| Total | | 1000 | 1000 | 1000 | 1000 |

Source: Same as Table 11.1.

Notes

- 1 It is important to clarify at the outset that the term 'higher education' here is used to connote broadly all forms of education (vocational, technical, or industrial) offered by the formal system of education beyond higher secondary. The core issue being raised here is, does education have anything at all to do with employment and if so what, how, and at what level. Hence, we have refrained from discussing the nuances of the different terms used to discuss the various forms and levels of higher education
- 2 What constitutes 'quality' is highly problematic. However, rather than getting into a philosophical discussion of the term, which would take us away from the purpose of our paper, we have described 'quality employment' to indicate broadly the terms and conditions of employment; specifically, it refers to the adequacy of wages paid to particular kinds of employment and the environment in which such works have to be carried out. Thus, for example, rising incidence of unemployment among educated youth would indicate not just lack of employment opportunities, but also lack of acceptable (in terms of wages, nature of job [manual or otherwise] and conditions in which these jobs have to be performed) opportunities as perceived by those choosing to remain unemployed.
- 3 The first committee, chaired by Montek Singh Ahluwalia, submitted its report in July 2001. It went by the name of Task Force on Employment Opportunities. The second committee, chaired by Dr S P Gupta, submitted its report in May 2002. This committee was called the Special Group On Targeting 10 Million Employment Opportunities.
- 4 The National Sample Survey Organisation (NSSO) of India collects detailed information on the employment status of the population through large-scale, nationwide sample surveys in which individuals are categorised as employed or available for work but not employed, using different criteria. Rates are calculated as percentages of the total labour force. The NSSO provides four different measures of employment and unemployment, each of which captures different facets of the employment-unemployment situation. One of these is the Current Daily Status (CDS). Based on the reported time disposition of the person on each day of the reference week, person-days in employment (unemployment) are aggregated to generate estimates of person-days in employment/unemployment. The person-day unemployment rate is derived as the ratio of person-days in unemployment to the person-days in the labour force. This measure captures the within-week unemployment of those classified as employed on the weekly status. The CDS measure of unemployment is widely agreed to be the one that most fully captures open unemployment in the country (Planning Commission 2001, 15–16).
- 5 Both the Planning Commission reports give a large number of tables containing state-wise data relating to the nature of employment generated and the level of unemployment disaggregated by sex, age, and level of education.
- 6 For a description of what constitutes formal vocational education in India see, India, Planning Commission, *Report of the Task Force on Employment Opportunities*, New Delhi, July 2001, 129.
- 7 For details see, J.A. Richey, ed., 1922, *Selections from Educational Records, Part II, 1840–1859*, Calcutta.
- 8 See K.D. Bhargava, ed, *Selections from Educational Records of the Government of India, Volume IV, Technical Education in India 1886–1907*, National Archives of India, Delhi, 1968.
- 9 MacDonnell's 'Note on Technical Education' reproduced in K. D. Bhargava, ed., op.cit, 9–84.
- 10 See letter from A.G. Bourne, Director of Public Instruction, Madras, to the Secretary to Government, Educational Department, dated 26 June 1904. Educational GO Nos: 313–14, Press, 12 May 1905, Tamil Nadu Archives.
- 11 For more details, refer Padmini Swaminathan, 1992a.
- 12 For more details on this and other industries, see, Padmini Swaminathan, 1992b.
- 13 Letters, (Nos. 501–08, 20 November 1901), from J.P. Hewett, Secretary to the Government of India, Home Department, to local governments. Papers relating to 'Technical Education in India', 1886–1904, Calcutta, 1906, 249.
- 14 Ibid, 250.
- 15 Note by Chatterton, Educational G.O.No.114, Miscellaneous (confidential), 4 March 1902, Tamil Nadu Archives.
- 16 For a brief outline of the history of the appointment of a Director of Industrial and Technical Inquiries and the need for a definite Department of Industries, see letter from L. M. Wynch (Acting Secretary to the Government of Madras, Revenue Department), to the Secretary to the Government of India, Home Department (Education), dated 3 March 1909. Revenue GO No. 3446. Press, 27 October 1910, Tamil Nadu Archives.
- 17 For details covering the papers printed for use of the members of the conference and the resolutions passed, see, *Papers Relating to the Industrial Conference held at Ootacamund in September 1908*, Madras 1908. Available for reference at the Tamil Nadu Archives.
- 18 Home Department (Education Branch), Part A, Serial Nos. 66–72, 1908, National Archives of India, New Delhi.
- 19 Letter from A. G. Bourne, Director of Public Instruction, Madras, to the Secretary to Government, Educational Department, dated 26 June 1904. Educational GO Nos. 313–14, Press, 12 May 1905.
- 20 G.O.No.274, Educational, 12 May 1911, Press, Tamil Nadu Archives

- 21 Ibid.
- 22 Educational G.O.No.114, Miscellaneous (confidential), 4 March 1902, Tamil Nadu Archives.
- 23 Letter from A. Chatterton to the Director of Public Instruction, Madras, 13 November 1903. Educational G.O. Nos. 313–14, Press, 12 May 1905, Tamil Nadu Archives.
- 24 Dispatch from the Secretary of State for India to the Governor-General of India in Council dated 29 July 1910. Educational GO No. 3446, Press, 27 October 1910.
- 25 G.O. No. 833 Educational, 16 July 1914 (Press), Tamil Nadu Archives.
- 26 For details refer: *Technical Education—Scientific Manpower Committee*, Educational G.O.No.633, 23 March 1948, Tamil Nadu Archives.
- 27 Ibid.
- 28 Educational G.O.No.2276, (Miscellaneous), 12 August 1950, Tamil Nadu Archives.
- 29 Refer, Suma Chitnis and G. Philip Altbach, 1993.
- 30 See for example, *Papers Relating to the Industrial Conference held at Ootacamund in September 1908*, Madras, 1908.
- 31 See paper titled, 'Technical Education for the Workman' 136–41, ed., *Indian Textile Journal*, reproduced in *Papers Relating to the Industrial Conference held at Ootacamund in September 1908*, Madras, 1908.
- 32 One of the Planning Commission reports (2002) has attempted a regionally disaggregated analysis of economic growth and unemployment. The findings are interesting in that the report documents that high economic growth states such as, Tamil Nadu and West Bengal, have not been able to translate growth into employment. Thus, in these states, economic growth is relatively high, literacy is high, but unemployment rates are also high, more so among the educated. These findings have not, however, changed the discourse on employment and education, which continues to hope that economic growth will become more employment elastic and that education will become more vocational and employment-oriented.
- 33 See, for example, the following; (i) K. N. Panikkar, 2001, 'Whither Indian Education', inaugural address to the 'National Convention Against Communalisation of Education in India', organised by SAHMAT, August 4–6, New Delhi, India. Available on net; (ii) Vijender Sharma, 2002, 'WTO, GATS, and Future of Higher Education in India', *People's Democracy* (Weekly Organ of the Communist Party of India, Marxist), vol. 26, nos. 6, 7, and 8, February 10, 17, and 24, 2002. Available on net; (iii) *The Tribune*, 2002, 'Teachers' panel opposes report', p 5 newspaper from Chandigarh, India, 2 March. Available on net.

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