Globalisation, Higher Education and Gender

Changing Subject Choices of Indian Women Students

Women gained access to higher education during the first four decades after independence in 1947 because higher education was fully state funded and highly subsidised. Nevertheless, their participation was characterised by clustering in the feminine, non-professional and non-market courses offered in general education. The pressures for change emanating from globalisation came when the higher education system was unable to meet the rising social demand for professional education. Therefore, globalisation has meant privatisation and increased individual cost of higher education. This paper looks at these myriad issues and asks how women have been affected by the increasing individual cost and the change in the subject options offered by higher education.

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The changes spearheaded by economic liberalisation and globalisation[1] are having an impact on higher education (HE) worldwide. The relationships between the governments and universities are changing all over the world. Some of the features that characterise this change are: reduction in government funding and the pressure on the universities to raise funds from the industry, the market and the individual student [Clarke 1996; Marginson 2000; Bachhi 2001]; universities have been forced to downsize; and the language of efficiency and accountability associated with corporate management is being used to run and to evaluate universities. All these changes have an impact on pursuing equity issues within the universities because "a commitment to equity and a commitment to cost-cutting" [Bachhi 2001: 120] may not go hand-in-hand. Several scholars have debated the issue of compatibility between managerialism and equity [Sawer 1989; Yeatman 1990].

There is also conflict between the traditional image of the university as the place where the pursuit of disinterested scholarship was the main aim and the new image of a corporate university. This conflict is not new. The emerging democracies in industrialising societies in 20th century have always expected that universities will reflect the broader social issues and concerns instead of being just the creators of knowledge. However, the recent shift to a corporate profit culture is in sharp contrast to the image of the university as an agent of social change and social mobility.

Some of the critical implications of globalisation are: the change in the stratification of disciplines/subjects between arts and science; the expansion of the applied/professional subjects and the private sector as a critical player and shifts in the subject choices of women. Moreover, globalisation is accompanied by an increased focus on techno sciences which have gendered implications because women are less likely to be involved in those areas which are frontrunners in the new economy and the market; they are also likely to be at the lower levels; they may also be unable to adjust to the time-space compression that IT demands or fosters [Harvey 1993; Slaughter and Leslie 1997].

The social movements which represent civil society have been questioning the dominance of technology in higher education. They also question the formulation of research agendas around the new technologies and at the marginalisation of social issues and the social policy research areas in which the women academic staff and students are generally disproportionately located [McKinnon and Brooks 2001]. Do women have the time to join the race for procuring funds for research or for running the departments? How would they fare in the race for promotions if they are linked to funds? Further, wealth creation replaces the traditional concern with the liberal education of undergraduates [Sassen 1998: 37] a majority of whom are women. What are its implications for women who are part of the gendered system of higher education? [Chanana 2003; Brooks and McInnon 2001].

Additionally, women academics who have been involved in feminist critiques are generally located in the humanities and the social sciences and are likely to be affected by the homogenisation of research activity within and across disciplines which according to Marginson is an effort "to make the butterflies fly in formation" (2000: 192). According to McKinnon and Brooks, the feminist scholars would wish to disrupt these formations and would like to fly in quite contrary ways (2001:6).

Globalisation has changed the world into a global market and the direct nexus between the industry, corporate world and higher education has brought a transformation in the skills needed for jobs. There has been a corresponding change in the boundaries between arts and science subjects. While the stratification between arts and science has been further reinforced, the sciences are subdivided into applied/emerging vs pure sciences. Natural/pure sciences are relegated to a lower position than are the applied sciences and professional skills. Again, academic courses related to biosciences such as molecular biology, microbiology, biochemistry, biophysics are preferred over biology, physics and chemistry. In this hierarchy of disciplines, new disciplines such as management, media and mass communication, fashion technology, etc, have also taken their place towards the higher end of the spectrum. The private institutions are very quick to respond to these demands.

Moreover, the new developments have led to the devaluation of subjects in the humanities and social sciences. Women used to enter colleges and universities mainly in general education or in arts, humanities and the social sciences till the early 1990s – a trend which is continuing. However, they are also entering the professional subjects offered in the public institutions. Simultaneously, they are entering the private self-financing institutions for pursuing their studies in both the new and the traditionally

labelled "masculine" disciplines. The gendered impact of these changes requires attention if the goal of social change and gender equity has to be achieved. The study of gender is, in effect, the study of inequality [Thomas 1990:2] and social differences are critical to the understanding of women's disciplinary choices.

Women's Subject Choices

Family and the educational institutions are the sites of social reproduction and communicate the binary opposition of femininity and masculinity to little girls and boys through socialisation. Thus, similar ideologies permeate the socialisation process in the family and the home and also underlie the classroom processes, educational structures and organisations.

Feminist sociological perspectives on women's educational experience have highlighted several dimensions, e g, their under-participation, underachievement and under-representation [Megarry 1984]; sex role socialisation and stereotyping of the 'feminine' role and its impact upon the girls' educational situation; and the segregation of girls into humanities and arts and boys into science at the school level. Sociologists contended that this imbalance in subjects had to be redressed to remove inequality [Kelly 1981; Harding 1986; Whyte 1986]. It was also emphasised that not only should more girls enrol in science in school, they must also do well. The argument is that girls tend to opt for specific subjects because of their socialisation which relates feminine roles to feminine subjects. In India, the decision to make science compulsory up to the 10th standard ensured that all girls will read science.

Additionally, subject choice and its relationship to gender in higher education also received attention [Acker 1994; Harding 1986; Thomas 1990; Keller 1983; Becher 1981; Hudson 1972]. It is argued that the clustering of women in specific subjects leads to their occupational segregation later in life [Sharpe 1976; Deem 1978; Wolpe 1978].

> According to Becher (1981) "academic subjects are not neutral, they are cultures, each with its own way of perceiving and interpreting the world" [quoted in Thomas 1990:7].

Much has been written on the patriarchal imprint on the subject choices of women in higher education and on the feminine and masculine dichotomy of subjects [Acker 1994; Thomas 1990]. Since masculinity and femininity are social constructions [Kellner 1997] the underlying assumptions about subject or disciplinary choices have to be uncovered along with their close connection to women's place in society [Harding 1986]. Thomas argues that it is a reflection of the balance of power between the sexes. She mentions (1990:5) three important assumptions. The first is that of the demarcation between science from arts or physics from biology. In other words, what is the meaning of science and how are science subjects demarcated? The second relates to the belief that science is more difficult than the humanities and within science physics is the most difficult. Why this belief when the best student in physics may falter in humanities and vice versa. The third assumption relates to the belief that science is good. Thomas says that this is the most debatable and important assumption. This has been falsified recently in view of the evidence that science has been used for warfare and armaments [Rose 1986]. According to Millett (1983), this assumption perpetuates male dominance in science.

Therefore, one should try to understand why certain subjects have become associated with women, and others with men. Why is it prestigious to take up science and mathematics? Why science and mathematics are difficult for girls? Moreover, subjects are considered masculine not because of numerical preponderance of men but it is the other way around, i e, science is viewed as masculine and therefore, more men take it. "To both scientists and their public, scientific thought is male thought, in ways that painting and writing – also performed largely by men – never have been" [Keller 1983:188].

Changing Context

There are several dimensions of changes that have taken place since 1991, the most important of which is in the position of the government which is reflected in the reduction of state funding to higher education, entry of private players, the increase in the individual cost of higher education, i e, the self-financing of higher education, the entry of foreign institutions, the large number of Indian students who go abroad on self-financing basis, change in the academic environment of higher educational institutions, impact on the service conditions of teachers, the parameters of efficiency and accountability being transferred from management discourse to educational discourse, the overwhelming dominance of professional and techno science subjects, etc. All of them need to be looked at and analysed from a gender perspective. However, the expansion of professional education and the changes in the disciplinary choices is the most visible.

An attempt is made here to see the influence of the so-called economic liberalisation and the market demand on women's access to higher education and their choices of subjects. There is a perceptible change in the choices of women especially in the metropolitan cities where they are enrolling in the new "professional" courses such as management, fashion designing, computers, human resource management, etc. Therefore, the question: how far are these trends reflected at the macro-level and do we have sufficient data to demonstrate the trends?

This paper seeks to demonstrate the latest trends in the enrolment of women in different faculties and subjects.[2] It is a follow up of a paper published in 2001 which tried to show the trends in the enrolment of women by discipline. It had also indicated some of the changes in the disciplinary choices of women and tried to infer the reasons for the change. In addition, the data on the marginal groups such as the dalits and tribals are also given. Women from these groups suffer the multiple handicaps of gender, caste, tribe and rurality because these are interlocking systems of domination [Hooks 1989:22]. The regional disparities, too, are as crucial as those of the general population and the marginal groups. Therefore, attention is also given to this dimension mainly to reflect on trends in the different states of India.

While the disciplinary choices are the main focus, the participation of women at different levels, namely, undergraduate, postgraduate and research levels has also been highlighted. This way it is possible to focus not only on women's entry into the system of higher education but also to see what happens to them after they enter the system. What are the chances of their staying on and progressing from one stage of higher education to another stage?

Access and Equality

Policy Framework

Higher education was entrusted with the responsibility of protecting the constitutional provisions for positive discrimination. The commitment to broaden the student base was reflected

in the financial incentives provided to dalit/adivasi students, namely, hostels, post-matric (high school) scholarships, etc. In addition, special cells/administrative units were set up in universities to monitor the entry/progress of students, staff and teachers from these groups. In course of time and as a result of political interventions, the reserved categories have been expanded to include people with disabilities, other backward castes or OBCs. There is no gender-based positive discrimination in education or employment although some provinces or institutions may have made a separate provision for them.[3]

Higher education has occupied a dominant position in independent India since it was perceived as a promoter of economic growth, technological development and also as an instrument of equal opportunity and upward social mobility. Various commissions and committees have deliberated on its criticality to the social and economic development of the country. Moreover, the expansion of higher education before 1991 also coincided with the centrality of equal opportunities discourses and policies in the public sector institutions which provided education and employment. This centrality of equal opportunity reflected the social importance of higher education and the concern of the Indian government to ensure the participation of first-generation students. It was also due to the increasing importance of social justice around the issues of caste, tribe, class and gender.

Moreover, reform in the social situation of women was central to the movement for independence, therefore, the education of women was included in the Five-Year Plans. The Report of the Committee on the Education of Women, 1959, and the Report of the Committee on the Status of Women, 1974[4] provided a broader perspective which led to a shift from a welfare approach to making women active partners in the development process. Later, the National Policy of Education, 1986 underscored the role of education as an instrument of women's equality and empowerment followed by the National Perspective Plan, 1988-2000 AD. Thus, there has been a careful articulation of education for equality for women which is reflected in the educational policy discourse in post-independence India.

Due to the twin concern with equality and excellence higher education in India was fully supported by the federal and provincial governments.[5] However, in spite of very low fees and "reservations" or the affirmative action the connection between socio-economic status, merit and elite institutions the women and the disadvantaged groups have either been excluded from or had a negligible representation in the best public institutions.

However, since 1991 the policies of the government have dramatically changed the seemingly privileged position of higher education. The government began to talk of removing public support to higher education and to make it self-financing while privatising it. Higher education has also become a non merit good. Private institutions are permitted to be set up on a liberal scale without a clearly defined policy to regulate the private institutions [Anandkrishnan 2004:210]. The link of universities with the private sector is not new in India nor is the nexus between higher education and the economy. What is disconcerting is the nature and speed of change, the motives of those who are establishing the private institutions, the ad hoc approach to the new developments and the lack of a considered response from the Indian government.

The policies of the Indian government since 1991 have involved restructuring of the economic institutions and the educational system. At that time the existing system had become too large and ineffective. It was characterised by a few high-quality institutions at the top while the majority at the bottom were of poor and indifferent quality. It was also not expanding rapidly enough to meet the rising social demand for higher education especially of the skill-oriented professional education. The government allowed the private sector to establish fee-paying and self-financing institutions to meet the increasing demand for higher education and for specific courses.

Prior to this in the 1980s the two provinces of Karnataka and Maharashtra allowed the establishment of colleges of engineering and medical education under the direct political patronage of the state politicians. These colleges filled the unfilled demand for engineers and doctors and students from all over India flocked to them. While they were affiliated to the universities of the region and were regulated by their statutes, they were also notorious for charging a large amount of money, over and above the tuition fees, etc, fixed by the universities/state governments, for admission. They are widely known as the "capitation fee" colleges. They remained limited in number and, therefore, did not impact on the system as a whole in contrast to current developments.

The private institutions levy hefty tuition fees with/without the approval of the state governments. The state governments and the judiciary has had to intervene in the matter of fixation of fees. Increasingly, these colleges have sought the status of deemed universities in order to be autonomous in matters of curriculum and examination/evaluation. Along with the financial exploitation of the students, the quality of their education is also suspect and so are their motivations [Anandkrishnan 2004]. Another limitation is that since private institutions get land at subsidised rates, they are expected to reserve seats for the SC/STs but there is little monitoring of these measures and no statistics are publicly known about reservations.

Simultaneous with the expansion of the private sector, the restructuring of public universities in the post-1991 phase has effectively downsized them which is likely to exacerbate gender inequalities [Allen and Castleman 2001: 151]. The state universities are affected radically by these changes which are reflecting on the type of academic programmes and subjects introduced by them. In other words, subjects which have a market demand are being introduced. The direct effects of these coupled with scarce public funding are reverberating through the public universities. The new programmes in most public universities are also self-funded by the students thereby increasing the individual cost of education. In fact, since the provincial governments are not increasing funding according to the rise in the cost of running the universities and also according to the demand for new academic subjects, self-financing courses have become a regular source of income for the universities.

Higher Education System

The Indian higher education system is one of the largest in the world. In 2002-03, there were 300 universities. The enrolment was 92,27,833 (about 7-8 per cent of the relevant age group). There were 4,36,000 teachers in 2002-03 as against 4,57,000 in 2000-01. Of these nearly 83 per cent are in the affiliated colleges and 17 per cent in the universities. Genderwise data is not provided by the UGC. However, the 2001-02, MHRD (2001-02) provides information on the women teachers in the 12 open universities which is 18.4 per cent and 21.5 per cent in the institutions offering correspondence courses.

In 2002-03, there were 15,343 affiliated colleges. Of these, 1,650 (10.75) are exclusively for women students. Although

the number has gone up from 1,600 in 2000-01 to 1,650, the proportion has reduced from 12.7 per cent to 10.75 per cent.

Since 1991 onwards a large number of private colleges on a self financing basis are being set up and their number has increased rapidly. According to Anandkrishnan, the private technical education system in India is the largest in the world and the growth of higher education in the last 15 years has been mainly in the private sector (2004). They seem to fulfil the demand for undergraduate professional courses in engineering/tehnology, medicine including dental education and health sciences, management, computer and IT education, mass media and communication, teacher education, etc. Most of these are in the southern and south-western states of Karnataka, Andhra Pradesh, Tamil Nadu and Maharashtra. Other provinces are following suit. They are quick to respond to the demand for new programmes though in a limited number of subjects. As a result, their numbers have increased so much so that they form a majority of the undergraduate colleges in India. For example, in 2002, of 977 undergraduate engineering colleges, 764 (78.2 per cent); of 1,349 medical colleges, 1,028 (76.2 per cent); of 505 management institutions, 324 (64.2 per cent); of 1,521 teacher education colleges, 1,038 (67.4 per cent) were private [Bhattacharya 2004: 177].

The growth of private education has contributed to the increasing undergraduate enrolment in higher education mainly in the application oriented science and professional subjects which are being offered in the colleges of arts and sciences. In fact, they offer what are known as the emerging application oriented science and management courses in microbiology, biochemistry, business administration, computers.[6] For example, in Tamil Nadu the number of self financing colleges in arts and science has increased from 54 in 1993-94 to 247 in 2000-01 while the government colleges increased only from 56 to 60 and aided colleges from 132 to 133 [Bhattacharya 2004:218]. The proportion of women also increased from 42.89 per cent to 51.07 per cent in the private colleges during this period.

The self financing engineering colleges in Tamil Nadu increased from 71 in 1996-97 to 212 in 2001-02 while the number of government (7) and aided (3) remained the same. The enrolment in the private colleges increased from 20,250 to 55,500.

Women in Higher Education

This section provides the data on enrolment (a) of women and men in higher education, (b) of women across faculties/disciplines or subjects, (c) across levels/stages, viz, undergraduate, graduate/postgraduate and doctoral/research level. It also highlights the difference in their enrolment in general and professional education. The period covered is 1950-51 to 2002-03. For specific examples, statistics of 2001-02 have been used because of the non-availability of data for the later years. The enrolment statistics for the 1990s are the focus of discussion while the data for the preceding four decades is used to indicate trends and shifts.

Starting from 1950-51 when the proportion of women was 10.9 per cent to 40.04 per cent in 2002-03, the increase has been significant. In other words there were 14 women per 100 men in 1950-51 which increased to 67 in 2002-03. Thus, the proportion of women entering higher education today has increased rapidly from 16,85,926 (32 per cent) in 1991-92 to 40 per cent (36,95,964) of all students in 2002-03 (Table 1). There have also been shifts in women's choice of disciplines in higher education. There are also wide disparities in enrolment by region, caste, tribe and by gender. These differences have an impact on women from the disadvantaged groups.

Enrolment in General and Professional Education

The programmes in higher education are divided into those of general subjects such as arts which include social sciences and humanities; and pure sciences, on the one hand, and the professional courses such as engineering (which includes architecture), medical science, teacher education, agriculture, law, etc, on the other. They are also divided into masculine and feminine disciplines. For example, arts, social sciences, humanities, teacher education have been viewed as feminine disciplines. On the other hand, commerce, law, engineering are masculine disciplines. Medical science has not been a masculine discipline in India unlike in the western countries. In India as in the rest of south Asia, the practice of female seclusion enjoined the treatment of women patients by women doctors. This necessitated training women doctors thereby enabling women to enter the medical profession [Chanana 1988].

The proportion of women in some of the masculine disciplines was miniscule soon after independence and remained so till the 1980s with the exception of commerce [Chanana 2000]. For example, the proportion of women in commerce was 0.5 per cent in 1950-51 and increased to 15.9 per cent in 1980-81. Thereafter it has been going up steadily and now stands at 36.7 per cent in 2002-03 (Table 2). In engineering/technical courses, their proportion was 0.2 per cent in 1950-51; 3.8 per cent in 1980-81 and is now 22.3 per cent. In law, their proportion has increased from 2.1 per cent to 20.8 per cent. In education women were 32.4 per cent even in 1950-51 and are now 50.6 per cent. In medicine their proportion was 16.3 per cent in 1950-51 and is now 44.7 per cent. The proportion of women in 2002-03 in arts was 44.2 and has been increasing steadily since 1970-71. The proportion of men, on the other hand, has decreased gradually during the same period from 83.9 per cent to 54.6 per cent. In teacher education, another feminine discipline the proportion of women has gone up from 32.4 to 50.6 per cent.

Science, a masculine discipline, provides an interesting insight on disciplinary choices of young women and men. For example, in science the proportion of men which was around 80-90 per

Table 1: Enrolment in Higher Education by Gender
(Numbers and percentage)

Year	Women		Men		Total
	Number	Per Cent	Number	Per Cent	
2002-03	36,95,965	40.05	55,31,868	59.05	92,27,833
1995-96	21,91,138	34.1	42,34,486.00	65.9	64,25,624
1991-92	16,85,926	32.0	35,79,960.00	68.0	52,65,886
1980-81	7,48,525	27.2	20,03,912.00	72.8	27,52,437
1970-71	6,55,822	21.9	23,45,470.00	78.1	30,01,292
1960-61	1,70,455	16.2	8,79,409.00	83.8	10,49,864
1950-51	43,126	10.9	3,53,619.00	89.1	3,96,745

Sources: (1) Karuna Chanana, 'Accessing Higher Education: The Dilemma of Schooling Women, Minorities, Scheduled Castes and Scheduled Tribes in Contemporary India' in S Chitnis and Philip G Altbach (eds), *Higher Education and Social Change in India*, Sage, New Delhi, pp 115-54.
(2) Karuna Chanana, 'Trading the Hallowed Halls: Women in Higher Education in India' in *Economic and Political Weekly*, Vol 35, No 12, March 18, pp 1012-22.
(3) UGC, University Development in India: Basic Facts and Figures 1995-96 to 2000-2001, Information and Statistics Bureau, New Delhi, UGC.
(4) UGC, *Annual Report 2002-03*.

cent till 1980-81, has come down to 59.8 per cent in 2002-03. The differential importance of general science for women and men over time has to be understood as a background to shifts in disciplinary choices in the recent past. For example, the proportion of women in science decreased from 33.3 per cent in 1950-51 to 28.8 per cent 1980-81. This was the period when natural science was at a premium, especially physics and chemistry. Till the 1980s they were the first choice for men students and while competing with men women were pushed out. It is also possible that science was not, in any case, the first preference for young women whose parents perceived marriage as a priority over higher education. An undergraduate degree, of any kind, only helped in the marriage market by raising the social status. A science degree required a longer investment of time and other resources and was, therefore, not desirable. The young women were also socialised to perceive higher education from that viewpoint.

Nowadays, research in natural sciences is not preferred by men because it does not lead to high salaried professions. It also requires several more years than an engineering, IT or a management degree before a job. Thus, more women are staying on to do research in natural sciences [Bal 2004:3653] and to fill up the space created by the men. Therefore, the percentage distribution of women and men have almost become equal in "sciences" during the last one decade.

Prior to the 1990s, i e, education and its linkage to the job market early on in life was only for those men who needed jobs and was certainly not for women. These days young women and men like to earn as soon as they can, even while in school. The revolution in values cuts across upper and middle strata, who want to begin earning as soon as possible. The daughters of city-based professional parents, especially if they do not have brothers, have really undergone a sea change in their socialisation. The parents are giving the best education to their daughters and expect them to be independent and follow careers. No doubt, they are in a minority especially at the macro level. In this changed situation, the priorities of women have also changed. They too want professional education and are, therefore, entering the so-called masculine disciplines. This point is elaborated in a later section. This can be better understood if one were to look at their percentage distribution in different disciplines.

Percentage Distribution in Disciplines/Subjects

The percentage of women as proportion of total enrolment of women in higher education is an interesting dimension. In other words, out of every 100 women students who take admission in higher education, how many enroll for which subjects?

It is noteworthy that fewer women per hundred women in higher education are opting for teacher's education or for medicine. For example, in teacher's education, considered to be a women's profession, the percentage has decreased from 3.1 per cent in 1950-51 to 1.8 per cent in 2002-03 (Table 3). As noted earlier, the number has also somewhat declined during the last one year. In medicine too, there is a decline from 5.8 per cent to 3.6 per cent. In commerce, the growth chart is interesting. Their percentage has increased from 0.4 per cent in 1950-51 to 11.8 per cent in 1980-81. In fact, most of the expansion seems to have taken place during the 1970s, a period when it begins to become a stepladder to management, chartered accountancy, etc. After 1980-81 it grows steadily to 16.5 per cent in 2002-03. In engineering and technology too, there is a significant increase from less than 1 per cent in 1950-51 to 4.2 per cent in 2002-03 and in law from 0.7 per cent to 4.2 per cent.

Thus, two simultaneous trends of clustering/concentration and dispersal can be seen in the enrolment of men and women in higher education. During the first three decades while women tended to be clustered in the general disciplines of arts and sciences (nearly 90 per cent); men's participation was characterised by both clustering in arts and sciences disciplines but also significantly dispersed in others such as commerce, engineering/technical and law. Lately, however, women's participation too is marked by clustering as well as dispersal.

Enrolment by Level/Stage

Once women enter higher education at the undergraduate level, do they move on the next two levels, namely, the graduate and research? Table 4 shows the distribution of men and women by level/stage of education. In 1991-92, 14,79,231 women were enrolled for undergraduate programmes which increased to 32,85,544 in 2002-03; 1,69,267 women were enrolled for graduate programmes in 1991-92 as compared to 3,55,893 women in 2002-03; and from 19,894 in 1991-92 to 23,609 in 2002-03 for research programmes. During these years their proportion has also increased from 32.8 per cent to 39.9 per cent in undergraduate programmes; from 34.7 per cent to 42 per cent in graduate level programmes; and from 37.1 per cent to 38 per cent in the MPhil and PhD programme. Their proportion is highest at the graduate level while their proportion in research programmes has marginally declined from 39.2 per cent in 1995-96 to 38 per cent in 2002-03. Until 1950-51, only 20.2 women had enrolled for

Table 2: Proportion of Men and Women Students to Total Enrolment by Gender and Discipline/Subject (1950-51 to 2002-03)

	1950-51		1960-61		1970-71		1980-81		1991-92		2000-01		2002-03	
Faculties	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Arts	16.1	83.9	24.6	75.4	31.7	68.3	37.7	62.3	41.8	58.2	44.2	55.8	45.4	56.6
Science	7.1	92.9	10.5	89.5	17.8	82.2	28.8	71.2	32.9	67.1	39.4	60.6	40.2	59.9
Commerce	0.6	99.4	0.9	99.1	3.7	96.3	15.9	84.1	22.1	77.9	36.5	63.5	36.7	63.3
Education	32.4	67.6	32.8	67.2	36.5	63.5	47.3	52.7	50.2	49.8	51.2	48.8	50.6	49.4
Engg/Tech	0.2	99.8	0.9	99.1	1.0	99.0	3.8	96.2	7.6	92.4	21.5	78.5	22.3	77.8
Medicine	16.3	83.7	21.9	78.1	22.8	77.2	24.4	75.6	33.2	66.8	44.0	56.0	44.7	55.3
Law	2.1	97.9	3.0	97.0	3.7	96.3	6.9	93.1	11.0	89.0	20.0	80.0	20.8	79.2
Agriculture	5.8	94.2	7.0	93.0	9.5	90.5	13.6	86.4	7.1	92.9	17.4	82.6	20.2	79.8
Veterinary science*									8.0	92.0	20.9	79.1	16.9	83.2
Others									38.3	61.7	37.7	62.3	37.9	62.2

Note: * Agriculture, veterinary science and others are merged for the years 1950-51 to 1980-81.

Sources: (1) University Grants Commission, University Development in India: Consolidated Data Statewise 1988-89 to 1993-94, Information and Statistics Bureau, New Delhi.

(2) UGC, University Development in India: Basic Facts and Figures 1995-96 to 2000-2001, Information and Statistics Bureau, New Delhi.

research degrees which increased in the next three decades to 8,780 in 1980-81 [Chanana 1993:12]. Their number nearly doubled to 15,018 in 1988-89. Now it stands at 23,609 in 2002-03.

The slightly higher percentage at the graduate level indicates that more women are transiting from undergraduate to the next higher level courses. It may also have something to do with the popularity of masters programmes in management, computers and IT, media, advertising, fashion technology, etc, which are popular in the metropolitan cities. But in the absence of statistics it is difficult to come to a conclusion.

Regional Disparities

The gendered impact of social, cultural and economic disparities across states [Chanana 1988] has been referred to, time and again, by the official committees and commissions as well as by the social scientists. These trends are continuing and the enrolment of women varies from province to province. Kerala has had the highest enrolment and even now it is 60 per cent, i e, there are more women than men in higher education. The other states where they are more than half the proportion are: Goa (58.5), Punjab (52.68); Andaman and Nicobar Islands (57.77); Chandigarh (55.5) and Pondicherry (52.60). Those with the lowest proportion are also the most backward; namely, Bihar (23.81); Jharkhand (30.40); Chhattisgarh (36.70); Rajasthan (32.33); Uttar Pradesh (38.40); and Madhya Pradesh (37.20). In these provinces the proportion is less than the all India average of 40.05 per cent.

The link between state and professional education is very close. For example, variations can also be seen in the growth of engineering and technology courses in the four southern states. In 1991, out of 70,481 students in degree courses 4,419 (6.3 per cent) were women which had increased from 3.9 per cent in 1983. A majority of women students were from the southern (1,989) and western (608) region [Chanana 2000: 1016-17]. Even in 2001-02, the enrolment in undergraduate degree programmes BE/BSc (Engg)/BArch was highest in the four states in which the maximum number of private colleges have been established. The number of women is also the highest in these states, e g, Maharashtra (24,710); Karnataka (22,287); Andhra Pradesh (22,615); Tamil Nadu (10,722) which works out to 20.6, 20.1, 30.4 per cent and 18.7 per cent of total enrolment in the subject.

Similarly, in medicine Maharashtra has the highest enrolment followed by Tamil Nadu, Andhra Pradesh, Gujarat and Karnataka. Women's enrolment too is high in these provinces. In Maharashtra, the proportion of women is 48.0 per cent (17,471). It is 38.4 per cent (6,206) in Tamil Nadu; 46.3 (6,066) in Andhra Pradesh; 37.8 (4,173) in Gujarat, and 33 per cent (2,367) in Karnataka. Though the number of students pursuing a MBBS degree is nearly the same as in Karnataka, Uttar Pradesh and Bihar, the proportion of women in the last two provinces is lower at 23.6 and 16.6 per cent respectively.

In commerce, too, the highest enrolment is in the same states alongwith some others.[7] For example, the highest enrolment in commerce is in Maharashtra, West Bengal, Andhra Pradesh, Gujarat, Bihar, Tamil Nadu. The higher enrolment of women is also in the same provinces – 39.6 per cent in Maharashtra, 41.7 in Andhra Pradesh, 44.9 in Tamil Nadu and 31.2 per cent in Karnataka. These states add to the increase in the proportion of women at the all India level. The same is true for the degree programmes in engineering.

The regional differences are due to several factors. One of them is the earlier start of formal education in the southern as compared to the northern region during the colonial period. Moreover, a large number of private engineering colleges have been established here even in contemporary period. Third, the socio-cultural practices and positive attitudes of parents towards the higher education of their daughters also impact on women's access to professional education. This difference is, to a large extent, due to the practice of female seclusion in the north and its absence in the south [Chanana 1988].

Caste, Class, Gender and Region

It is quite well known that in spite of a very well formulated policy of positive discrimination, the representation of dalit and adivasi students is not adequate and the proportion of women from among them is negligible. They generally join general education courses and are denied access to elite/courses and institutions. In 2001-02, the proportions of SC/ST students were as follows: Scheduled castes 11.5 per cent (10,16,182) SC men 8 per cent (7,06,769) and SC women 3.5 per cent (3,09,813). The ST students constituted 4 per cent (3,51,880) of total enrolment; men 2.7 per cent (2,40,495); women 1.3 per cent (1,14,168). In MPhil/PhD programmes, there were 53,119 students all over the country. Of these 36.3 per cent (19,299) were women; 5.9 per cent (3,133) SC students; and 1.80 (951) ST students. There

Table 3: Percentage Distribution by Discipline and Gender – 1951-2003

Discipline	1950-51		1960-61		1970-71		1980-81		1991-92		2002-03	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Arts	67.9	43.2	70.2	41.7	64.3	38.7	56.2	34.6	54.2	35.6	51.1	41.0
Science	21.0	33.4	18.6	30.8	25.7	33.2	20.6	19.0	19.8	19.0	19.9	19.8
Commerce	0.4	9.6	0.5	10.2	1.9	14.1	11.8	23.3	14.6	24.3	16.5	19.0
Education	3.1	0.8	3.7	1.5	3.2	1.5	4.5	1.9	3.7	1.8	1.8	1.2
Engg/Tech	0.04	3.4	0.2	5.1	0.1	3.8	0.7	6.2	1.2	6.7	4.2	9.7
Medicine	5.8	3.6	4.5	3.1	3.4	3.2	3.6	4.2	3.5	3.3	3.6	3.0
Law	0.7	3.8	0.5	3.0	0.4	2.9	1.6	8.1	1.8	6.8	1.7	4.3
Agriculture	1.1	2.2	1.8	4.6	0.9	2.5	1.2	2.8	0.3	1.5	0.3	0.8
Veterinary science*									0.1	0.3	0.1	0.2
Others*									0.8	0.7	0.8	0.9
Total												

Note: * Agriculture, veterinary science and others are merged for the years 1950-51 to 1980-81.

Sources: (1) Karuna Chanana, 'Accessing Higher Education: The Dilemma of Schooling Women, Minorities, Scheduled Castes and Scheduled Tribes in Contemporary India' in S Chitnis and Philip G Altbach (eds), *Higher Education and Social Change in India*, Sage, New Delhi, pp 115-54.

(2) University Grants Commission, University Development in India: Consolidated Data Statewise 1988-89 to 1993-94, Information and Statistics Bureau, New Delhi.

(3) UGC, University Development in India: Basic Facts and Figures 1995-96 to 2000-2001, Information and Statistics Bureau, New Delhi.

were 824 SC women and 344 ST women, i e, 4.3 per cent and 1.8 per cent respectively of all women research students.

Further, they are better represented in states in which women have better representation and in which higher education facilities have expanded in recent years. For example, the proportion of scheduled caste women to total SC enrolment is 34.1 per cent in Maharashtra; 39.7 in Tamil Nadu, 32.2 per cent in Andhra Pradesh, 24.5 per cent in Karnataka. Similarly, the scheduled tribe women are 29.4 per cent in Maharashtra; 22.6 per cent in Karnataka; 32 per cent in Andhra Pradesh, 41.2 per cent in Gujarat; 33.7 per cent in Madhya Pradesh.[8]

This trend also continues in different disciplines. For example, in 2001-02, the proportion of all women students in BE/BSc Engineering and BArchitecture courses was 24.8 per cent. The proportion of all SC students was 7.4 (38,935) and of STs 3.5 per cent (18,644). Further, the proportion of SC women was 1.9 of total and ST women was 0.4 (2,035). The number of tribal women has increased fourfold since 1995-96 when it was 575. If we look at the proportion of SC/ST women vis-à-vis total number of women in engineering courses, the SC women are 7.5 per cent and ST women are 1.6 per cent.

The proportion of women vis-à-vis the SC/ST students as a whole also reflect the same trend. For example, the proportion of SC women as part of total SC enrolment was 28.2 per cent in Andhra Pradesh, 29.2 per cent in Karnataka, 24.6 in Tamil Nadu, and 39.4 per cent in Kerala.[9] 61.6 per cent of SC women students in engineering courses are enrolled in Andhra Pradesh, Karnataka and Tamil Nadu. If only the information had been available for Maharashtra, the proportion would be much higher. Similarly, the proportions of ST women are also high in the same provinces. For example, 23.4 per cent in Karnataka and 18.7 per cent in Andhra Pradesh. If we look at the enrolment in the three states of Karnataka, Tamil Nadu and Andhra Pradesh, 55.3 per cent of women are enrolled in engineering courses in the three provinces.

In medicine too, the situation is similar, 60.8 per cent of SC women (4,035 out of 6,637) in medicine are in the four states of Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh. In medicine, 68.2 per cent (4,577 out of 6,849) ST women are enrolled in Nagaland, a tribal majority province in north-eastern India. However, the ST students, especially women, are very small in numbers and, therefore, the proportions have to be seen accordingly.

Gender, Subject Choices and Career Aspirations

The relationship between availability of disciplinary choices and women's ability to access them are not directly related nor are they dependent on women's academic achievement. In India, girls' academic performance is generally better or at par with the boys when they finish school. Every year newspaper headlines highlight the better performance of girls at the school board examinations in different states. Yet when they pursue higher studies, it is not necessarily the subject of their choice.[10]

While the shortage of seats or of intake capacity in specific academic programmes and lack of success at the entrance tests may be ostensible reasons for the lack of consonance between educational aspirations and disciplinary choices, these do not provide sufficient explanations. The fact is that a large majority of women may be deprived of exercising free options at the school level (e g, being discouraged by family to take up science subjects) or not being sent to expensive private "good quality" schools. After schooling they may not be provided the financial investment in coaching/tuition for entrance tests (e g, there is now an entrance test for coaching classes for IIT entrance tests) because they are very expensive and women, after all, are not socially expected to work and earn before marriage.

Discipline boundaries not only limit choices, they are also dependent on the future options of "life chances" of women. For example, even though higher education for young women is taken for granted nowadays among the upper and middle strata in the cities, it is still not viewed as an immediate investment in their careers. Education is, among the majority, an investment to fall back upon in case of the daughter becoming a widow or being deserted [Chanana 1988]. Social role expectations affect the aspirations of women in other ways too. For example, in the patriarchal social structure, parents are not expected to use the income of their daughters. Therefore, even educated daughters are not encouraged to work and if they do so, it is for a short period before marriage. It is the right of the groom's family to decide whether she will work or not.

The poor parents have another problem even though they perceive the significance of education. They expect and need immediate returns from education – something which is possible through professional degrees. But professional education excludes the poor students because it requires several years of studentship and higher financial investment than general education. General education, although inexpensive, does not assure a job. So general education is useless while the professional education is unaffordable. Besides, there is a lack of role models and socialisation support at home. Women from these social categories are the most affected by the stratification of disciplines, programmes and institutions. Further, the social and economic disparities are reflected not only vis-à-vis caste and tribe but also at the regional level, i e, in the different states.

Therefore, for a majority of young women in the academia higher education is not linked to careers. This is the reason why women, even from well-off homes, join arts and humanities because they are cheaper, softer, and shorter than the professional courses. But we have seen that the number of those who are entering the professional subjects is growing.

In fact, the trends, identified in 2001, of moving away from the general courses to the professional courses which lead to jobs and careers are being reinforced. One could treat the post-1991 phase as a period which set forth a change which increased the social demand for a specific kind of professional education, especially skill-oriented undergraduate degrees which lead to a career and a job. Earlier an undergraduate degree, except in engineering

Table 4: Proportion of Women by Level/Stage

Year	Undergraduate	Graduate	Researcher
2002-03	39.93	42.04	38.5
1996-97	34.1	34.0	39.2
1995-96	34.1	34.0	39.2
1994-95	33.6	35.6	38.5
1993-94	33.02	35.4	36.5
1992-93	32.43	35.63	38.4
1991-92	31.8	34.70	37.1
1980-81	27.2	28.2	27.3
1970-71	21.6	25.8	20.7
1960-61	16.2	17.3	15.6
1950-51	10.8	12.1	14.1

Sources: UGC *Annual Reports* for relevant years.

and medicine, was a step to further higher education and was not a finishing degree. Young men and women were not expected to work and earn soon after finishing undergraduate education. Those who did so belonged to the lower middle strata and needed to work and to earn to support the family and themselves. The middle and upper strata, on the other hand, could postpone income generation until further education. This was more applicable to most women across strata, that is, they were not studying in order to earn and to take up jobs. It was an investment in their social status as well as an additional criteria for marriage.

As mentioned earlier, while this may still be true of a large majority of women and their parents, that is, they do not expect their daughters to earn after receiving a degree, there are changes in the expectations of parents and of young women in big cities. Therefore, parental expectations and young women's aspirations have been push factors in the shift of disciplinary choices in the mid-1990s. More women are enrolling in engineering and law but the preference for management degrees and computer-related degrees and skills is higher. These subjects are available in the fast expanding private sector which responds quickly to the unmet demand for specific skills. Informal discussions with key persons reveal that computer applications and software computer engineering as compared to other specialisations are popular among women. Further, HRM requires interaction with the public and there are several others of this kind. In the last few years women have become visible in the call centres; telemarketing; front desk jobs in the multinational/private banks, hospitals, hotels, etc. Quite a few of these jobs are short-term and contractual and, therefore, suit the social role expectations of women. It will, therefore, have to be seen if women are getting professional training which leads to jobs and careers? Moreover, there are several new courses and academic programmes which have not yet found space in the official statistics.

As far as teaching is concerned, it is also anticipated that the public and private institutions which offer contractual, low paid, short-term jobs may have, in the long run, substantial number of women faculty leading to the feminisation of teaching in the private higher education [Chanana 2003].

A study of women scientists in biological sciences in the central universities and the national laboratories also concludes that there are fewer permanent women faculty in comparison to those who obtain research degrees. It is argued that the researchers join as faculty members when they are in their early thirties, a time when women are either married or have to be married soon. They need a break to raise a family and after the break cannot compete with men in research and professional experience. Again, more women than men are holding junior faculty positions [Bal 2004]. The presence of women students in technology and engineering has also increased but a study of women engineers [Parikh and Sukhatme 1992] showed that the most preferred specialisations of women were: electronics, electrical and civil engineering. Computer science, chemical and mechanical engineering followed in that order. It also mentioned that there are fewer women students in the elite institutions such as the IITs and the regional colleges of engineering.

Therefore, modern education and skills seem to reinforce tradition for a majority of women students. The new disciplines which are offered in the public and private sector higher education, though exclusively in the latter, seem to meet the aspirations of only a minority of young women and their parents in metropolises to be professionally qualified, to have a career, to earn to be independent. In their case, gender and class overlap in overcoming the traditional barriers to women's education.

Conclusion

In spite of the fact that higher education was almost free during the first four decades since it was publicly funded women have not achieved equal access. It has also been either denied to or almost impossible for the women from the disadvantaged groups to access because of social and economic reasons. There is a critical need to deconstruct the rhetoric surrounding globalisation and economic liberalisation and their inequitable impact.

Since 1991, a number of private institutions have been established. These private institutions offer the market-oriented professional courses and are very expensive. Nevertheless, the private sector has met the unmet demand for specific subjects and increased the intake capacity in the most sought after disciplines. On the other hand, it is at a high individual cost. So the question arises: what would be the impact on women? It is by now quite well known that a majority of the parents are reluctant to invest in the education of their daughters whose education does not have a production value because their income goes to the groom's family. Therefore, would women be joining them and in what proportions and in which subjects and specialisations? It is difficult to answer these questions without separate gender-based enrolment data for private and public institutions and for each and every discipline and academic programme separately. Moreover, the issues of social access and equity or of quality receive little attention in the private sector. Would parents spend on the higher education as well so on the dowries of their daughters?

Additionally, pure sciences, social sciences, arts and humanities, the disciplines preferred by women, remain confined to the public institutions. Has the earlier trend of concentration of women in these disciplines been reinforced? Again, even though women are enrolling in professional education in larger numbers which institutions, private or public, are they joining and in what proportions? It has not been possible to answer these questions directly in the absence of relevant data.[11]

Finally, it is imperative to create a broad-based database on higher education which is gender sensitive.[12] Information on students, namely, their enrolment and outturn by level, discipline, specialisation and institution are imperative for any understanding of the system. In addition, research on higher education deserves support so that a quantitative database can be supported by qualitative inputs. It would help in charting out the future course of action and the research policy. It is high time that the government evolved a framework on the role and function of higher education, public and private. For this, it needs a vision which will encompass the issues of access and equity with a focus on the education of girls and women. EPW

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Notes

[This paper is adapted from a paper presented at the UNESCO Colloquium on Globalisation, Higher Education and Knowledge in December 2004 at Paris.]

1 Globalisation means many things to many people. According to some, colonialism was globalisation while others refer to modernisation as globalisation. I refer to it as the impact of economic liberalisation in my country since 1991 and the impact of it on higher education.

2 It may be noted that the statistics published by the University Grants Commission and Ministry of Human Resource Development is based only

on enrolment (which is of uneven quality). For instance, the UGC annual report for 1996-97 merges the enrolment figures for women in agriculture with those of medicine and several other disciplines. I hope to highlight the paucity of statistics on higher education in general and on women in particular.

3 The one measure which recently the universities have been asked to take in favour of women is to set up committees against sexual harassment. This directive of the University Grants Commission is fulfilled by some universities. Whether these committees are effectively functioning or not is a moot question.

4 This report was entitled *Towards Equality* and is better known by that title. This committee was appointed by the government of India after the declaration of 1975 as the UN Year for Women. The committee submitted its report in December 1974 and covered all aspects of the status of women in post-independent India. The report was a landmark in that it substantiated a decline in the overall status of Indian women and shook the Indian intelligentsia, political leaders and women out of complacency. It would be no exaggeration to say that it set the agenda for contemporary women's movement in India.

5 It may be noted that while higher education was fully state funded, private schools were allowed to continue for which the government was criticised since it allowed the dual system to operate at the school level.

6 This information is given by my colleague, in the Centre for the Study of Regional Development, JNU, New Delhi, India. I think they are run as colleges of arts and sciences in order to circumvent the approval of the all India Council of Technical Education which has stringent norms for approval and establishment of colleges and programmes. They are using a different nomenclature and the universities are allowing them affiliation.

7 Since the cost of setting up institutions in commerce, arts, social sciences, teacher education is not as high as for engineering and medical colleges many more provinces have started them.

8 The populations of scheduled castes and tribes vary from province to province. Therefore, this is an additional factor that requires attention.

9 The total enrolment was 651 of which 332 were women and 319 men

10 No doubt, the competition for seats in "good quality" institutions is high and young women and men have to clear the entrance tests before they can get admission for a subject of their choice. Nonetheless, in absence any information about the aspirations of women and men; about how many men and women sit for and succeed in which entrance test, one can only talk about enrolment data which too is quite inadequate.

11 The statistics on higher education in India are very poor. The private institutions lack in transparency and do not provide any statistics The public sector does no better. Even the all India bodies such as the UGC, MHRD, AICTE either do not give any statistics on the enrolment of women and men students institution wise, level wise, discipline wise and are not gender sensitive.

12 It is a sad state of affairs that a country which boasts of very large higher education system should not have considered it necessary to collect data on higher education which will provide information about students, faculty and staff in the public and private institutions.

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