
Open and Distance Learning for Empowering Women through Science Teaching: The Performance and Promise of Open and Distance Education in West Bengal, India

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ABSTRACT

Education is a panacea to make women the first, the prior and not the Second Sex. Educational achievement guarantees a better social and economic life for women. Legal and Constitutional provisions cannot efface women subjugation in totality. Traditional institutional factors often contrive to exclude women from participating in higher education. Science Education offered by traditional educational institutions often goes out of reach for women learners. For Traditional Universities attendances are compulsory in science subjects, as it is not only theory but includes substantial experimental and observational activity. Open University keeping the students prior commitments in mind tries to solve theories by Self Learning Material and essential practical activities through Personal Contact Program. This paper would try to study the level to which Netaji Subhas Open University (NSOU), a State Open University has been socially responsible in catering science education for women learners in West Bengal. Keeping the results in mind, the paper would try to point towards some future attempts, if adopted by open and distance learning might help to develop positive attitude among women learners towards distance learning and enchanting towards science subjects.

INTRODUCTION

Acquisition of knowledge or education plays a catalytic role in a country's socio-economic development and is one of the principal means available for a deeper and harmonious form of human development reducing poverty, nescience and exclusion. Access to education should be available to both men and women as it provides an end in itself as well as a means of realizing other desirable ends. Parity in education at the primary level has increased significantly in most parts of the world but girls' participation rates decline at the secondary level in many regions ⁽¹¹⁾. Boys and girls are relatively equal in health, education and developmental outcomes during their early childhood but disadvantages mount for girls during child-bearing age. In developing countries girls are likely to be married off and take the responsibility of childbearing during adolescence. One-third of girls in the developing world are married before age 18, and one-third of women in the developing world give birth before age 20 ⁽¹²⁾. According to UNICEF (2012) West Bengal has the sixth highest incidence of child marriage in India with 54.8% children married before 18 years. In this State, at least one in two currently married women in age group 20-24 years happens to be a child bride. Responsibilities of marriage and childbearing tend women to fall behind in higher education

as well as a better future ⁽¹³⁾. Undervaluation of a woman's intellect is the manifestation of a lengthy narrative ⁽⁵⁾. Ghosh (2012) in the article mentioned that the policies and five-year plans of the government of India from independence till the mid 1980s did not address the issue of science education of women at all. Science has always had a masculine image and underrepresentation of women in science education is a stark reality and a persistent problem ⁽¹⁾. The exclusion reflects the greater social acceptability of some courses of study as being more appropriate for women. Subjects like literature, nutrition, home sciences support the socially prescribed conventional roles of women as nurturers and some employment field like teaching or motherly nursing are believed to require attributes inherently possessed by women. Science education being more laborious is generally disapproved for girls belonging to conservative families. Scientific mind is ruled by logic and rationality is associated with freedom breaking free from the traditional shackles. Unfettered freedom is discouraged by patriarchy and hence forth fostering the spirit of rationality or independence is thought to encourage immorality undermining the family values ⁽⁶⁾.

THE SAGA OF MARGINALISATION AND THE ROLE OF DISTANCE LEARNING

The rhetoric of modern education often nooks the conservative, archaic mores for women and bestow them the opportunities to enrol them in higher educational institution. Higher education is a potential instrument for bringing about social transformation and ensuring the success of democracy. Higher Education in order to attain maximum success has to thrive within contemporary realities and counteract with social stratification. It has to pave the way for a paradigm shift from exclusive reliance on a masculine-orientated curriculum to a more flexible –liberal content that is comprehensively suited to the entire population. Developing countries often fails to offer education to all sections of people in the society through conventional on-campus system of education due to lack of infrastructural facilities. In the past few decades distance education has seen the booming as it responds to the increasing demand for highly trained human resources for socio-economic development of the countries and therefore each and every nation has paid special attention to the possibilities of distance learning in higher education ⁽¹⁰⁾. Distance Education offering more revenue to the educational institutions hardly requires the use of scarce on-site space but tries to engulf the gap i.e. the difference between requirement and resource provision.

ROLE OF NETAJI SUBHAS OPEN UNIVERSITY IN OFFERING HIGHER STUDIES

In a highly populated lower income state like West Bengal infant mortality, illiteracy and huge poverty create a lot of chaos in the social, political and economic environment. To cope with the present economic backwardness and to avoid prospective fears of severe socio-economic crisis, it needs a big push toward better socio-economic performance, which is not possible without improving the human capital of the country. Therefore, it is essential for West Bengal to enhance its general education level but due to the seat limitations and also for the inflexibility in space and time at the traditional educational institutions, only small number of people can gain higher education. Encouraging distance and open learning system can only solve this problem. Netaji Subhas Open University (NSOU), a State Open University of West Bengal established in 1997 offers higher education through distance and

open learning mode. The University through School of Sciences offers Under Graduate, Post Graduate and Doctoral Degree in science and encourages new pedagogy. NSOU is the only university in West Bengal which provides young learners to enroll in science subjects for Under Graduate courses through Distance mode. NSOU always tries to harness the potentials of the learners who have succeeded to enroll themselves in the educational system. The institution tries to build their self-confidence, to harness their capacities and provide the opportunities and choices that they deserve and contribute toward gender equality. It is the responsibility of colleges and universities to harness the potential when they have demonstrated their capability to succeed in the educational system. In order to understanding the problems regarding teaching of science in NSOU, a survey was carried out during June 2014-Nov 2014. The survey was carried out with the vision to provide insight into challenges faced by students and teachers of science education through open and distance learning.

A SOCIAL SURVEY AND ITS RESULTS

In this study, the sample under consideration covers students and lecturers of Science subjects in Netaji Subhas Open University. Due to the matter of convenience and huge learner's enrolment, only 2000 women students and teachers were selected through systematic random sampling from eight study centres of NSOU namely Manindra Chandra College, Raja Peary Mohan College, Bolpur College, Taki Government College, Kharagpur College, New Alipore College, Siliguri College and Barasat College. *This study aims to understand the challenges faced by women students and teachers doing science in Open and Distance institution, analyze the reasons behind the low enrolment of women learners (category wise) in science stream, learn about their real life experiences and throw some light on the possible ways of solving the problems of ODL and encourage female learner's scientific mind.* NSOU envisions in bridging the rural-urban disparity and imparting a gender fair science education. It has also endeavored to fulfill the commitment to the macro-level demands and in order to understand the performance one has to consider few perspectives:

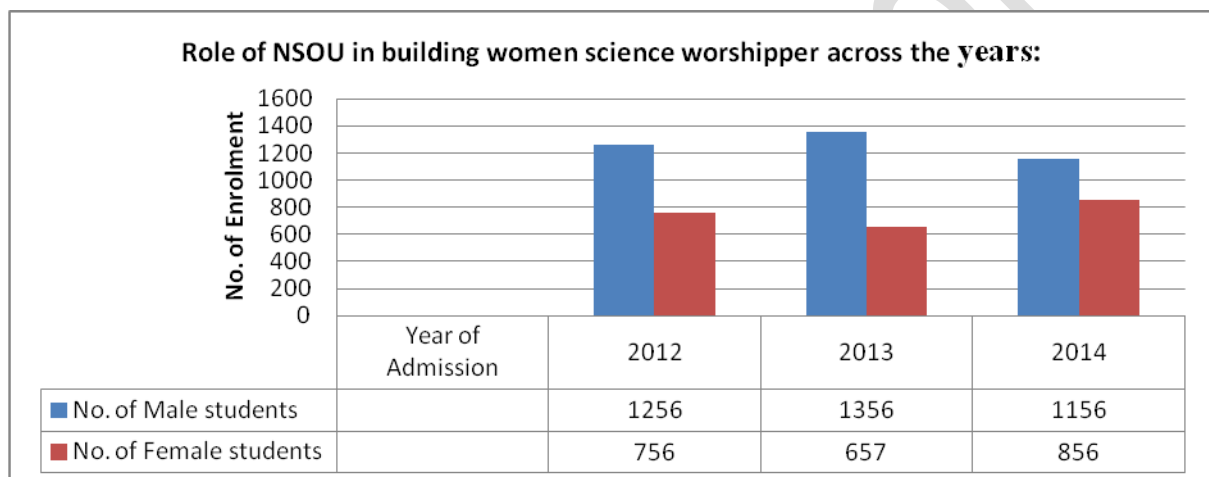
- i. Growth of women learners as against the total enrolment
- ii. Growth and enrolment of learners already in employment or endowed with house hold responsibilities in time of admission against the total enrolment
- iii. Ratios of learners, who come from groups that may be considered socially, economically or otherwise disadvantaged in our country
- iv. Students Attitude, Expectation and Satisfaction from the concerned mode of learning.

i. Growth of women learners as against the total enrolment:

Since 1951 there has been a steady growth in universities/university level institutions and colleges in India. While over the years, the wide gap between women and men entering university persists but still there has been a steady rise in the proportion of women taking up job-oriented courses and practical subjects. Female participation in the science subjects of NSOU under study is 49%.The female participation ratio seems to be favorably conditioned by the kind of course structure, courses offered and pre-requisite for admission that go with them. The female participation ratio if compared with the conventional system indicates a

favorable pattern. In respect of India the female participation in conventional science education is worked out by UGC 39% ^(2, 8) in 2004 while in NSOU it more than the mentioned statistics. It needs to be recognized that although the enrolment rate are generally lower for the females compared to the males; the females from rural part belonging to the lower castes and some religious groups suffer more acutely in accessing higher education than other female. When analysing the admission data of science department in NSOU, it can stated that there is a significant increase in enrolment of women learner in NSOU over the years. The first figure (Graph 1) shows that there is a considerable increase in women enrolment in 2014 for UG courses when compared with the last two years and maximum number of girls got themselves enrolled in this institute having the faith that this institute will harness their best potential.

Graph 1: Role of NSOU in encouraging Women Learners to do Science in Under Graduate Level



The distribution of students in NSOU by entry population of 2014 shows a relatively high percentage of participation (52.08%) from graduate population of other regular universities, who enroll in Open University for post graduate level. The next blocks of students get enrolled at graduation level after completing higher secondary from WBCHSE (24.42%). These students prefer NSOU over other distance university because only NSOU in West Bengal offer Science learning in open mode for graduation degree and that too in the vernacular medium. Very few students (10.88%) when interviewed informed that the last educational institution attended to be any Open Learning Institution and maximum number of the learners came from regular educational institution. The reason here again could be unrelenting entry requirement of regular universities offering bachelor and masters course or the hurdles which mount up on them with the growing age.

ii. Growth and enrolment of learners already in employment or endowed with house hold responsibilities in time of admission against the total enrolment:

The saga of marginalization for women is not a recent notion but has deep rooted history. Modern women are taking a conscious effort to overcome the sexiest stereotypes or the masculine image of the world. Most Institutions try to break the male-oriented curriculum

and favour gender equity. Such kind of efforts can be confirmed from some empirical indicators like:

iii. **Rise in number girls pursuing higher education can be easily explained by the following table:**

Women represent a large and underserved population in the developing world and gender-based inequities often retrain them from the opportunity to access educational training. When several women were interviewed during the survey they expressed their desire to study more as they felt education and training can only provide them the wings to fly. Though for both the sex the principal motivation cause might be the urge to earn and substantiate the family income but women have started to feel Constitutional measures to be incompetent to efface their thralldom. The table (Table 1) shows the reasons which motivate the men or women to take up higher studies.

Table 1: Gender Disparity and Different reasons for taking up Higher Studies

Reasons for taking up Higher Studies in Male	Reasons for taking up Higher Studies in Female
Improvement in Earning Power	Increased Awareness about the Benefits of Education
Better Job opportunity	Study centers providing Comfortable Ambience to Study
Perceived expectations- Higher Education considered as common as elementary in case of a male child	Change in Social Perception and Parent's Attitude
	Firm belief and expectation on education to bring High Respect.
Improvement in Living Standard and Social Acceptance.	A wish to earn and supplement the Income of the Family
	Self reliance and urge to participate in Decision Making

The rhetoric of modernization has open up portals for women education and such provisions are not restricted to the anglicized elite mass. Modern women attempt to surpass the patriarchal and archaic mores. Unfettering the social shackles women tries to improve their skills and capabilities and contribute to family income as well as decision making. Women like their counter parts like to create, receive and use knowledge for their economic, social, cultural and political development. In the present age they know that educational achievement is the only elixir to ensure a better social and economic life for them.

iv. **Employment status during the time of admission:**

The percentage of employed students (at time of admission) in NSOU is 11.68%. The lesser percentage in India can be explained by the fact that the incidence of unemployment even among the educated population is huge and the desire to have addition educational

qualification to ameliorate their job prospect motivates them to enroll in NSOU. Even family members have started realising the importance of women education for making a happy home and therefore 44.47% women students married at the time of admission still take-up studies post-marriage. 79 students (9% approx) informed us that the Open and Distance Education provided them the flexibility and a breeze beneath their wings or urge to study in spite of the child rearing responsibilities. In absence of the flexible provision like open and distance learning these students would never be able to get opportunity to improve their qualification or skill through formal institutions. Many of them can be considered as adult learners and are above 30 years – again an age-group for which conventional institutions of higher learning are normally out of reach. Hence here is another dimension of social demands from non-traditional student group (higher age bracket) which is met by the Open University.

v. Enrollment of students from marginalized category:

In Countries like India, different kinds of marginalization cripple down a hefty population with minimum capability to contribute to the national progress. Marginalized population with less control over life and resources are forced to live a life of impoverishment. Life of economic and socially marginalized are deprived of some of the basic human rights and have to live with low entitlements or resources. The structural discrimination against these groups is legitimized by the social system. Due to the expansion of rational mind, legal protection and government initiatives the discrimination is mitigating. The segregated or marginalized masses are taking an initiative to overcome the atrocities and education is the only path to ensure a desired social mobility. Students of all background enroll themselves in University like NSOU, as they get an opportunity to study with minimum economic expense. The data discovered such conscious efforts taken by students from different marginalized background.

a. Enrollment from Social Backward category:

The practical based subjects (Zoology, Geography) in Post Graduate Level due to the limited infrastructure have certain eligibility criteria and but admission rule follows the UGC norm for ensuring the reservation clause. In Under Graduate level the unlimited seat provision does not require the reservation factor. The access to education for the social groups varies within the respective religion to which they belong. Therefore, women of the SCs, the STs, and the OBCs community suffer unequally depending on their practiced religion. Participation of Schedule caste students (23.5%) was found to be fare in NSOU but schedule tribe candidates (3%) were few in number. STs within the Hindu community suffer more than their Christian counterparts. But the participation of backward class students is favorable when compared with the conventional education system. Students staying in remote tribal areas of North Bengal do not have many traditional educational institutions nearer to their place so they enroll themselves in Open and Distance Institution. Conveyance and money are the primary challenges faced by these students staying in remote places. The nominal fee or subsidized fee structure ease out the burden of higher studies for adult learners usually endowed with much familial responsibilities.

b. Enrollment from Different Community:

Education knows no religion. It breaks the trammel of conservative religious myths and beliefs. NSOU gives opportunity to every one irrespective of caste, creed and religion. Traditional education portrays a harsh reality that the GER among Muslim females was 5.8 per cent compared to 9.32 per cent for Hindu females, 12.7 per cent for Sikh females, and 16 per cent for Christian females ⁽⁹⁾. But in NSOU we find though maximum students were interviewed to be Hindu but Muslim women still came out of the purdah and got them enrolled in Open and distance education. During the survey 50 muslim students felt free and willing participated in this work. They were glad to state that students of hindu, muslim or other religion are equal in eyes of the coordinator, educational institution and authorities of NSOU. They felt comfortable as the study centre provided them the flexibility and comfort zone with no penalties of any kind charged on them for their dress code or religious belief. Discrimination on any ground is strictly discouraged.

c. Enrollment of students from economically challenged families:

The survey data reveals the fact that enrollment from the middle and bottom is several times higher than the enrollment for high income families (> Rs 50000/month). The bottom group with less than Rs 5000/month gets highest representation. Then comes the next category (Rs 5001/month-Rs 15000/month) followed by the one above (Rs 15001/month- Rs 25000/month). A section of students (30%) come from families which primary depend on agriculture or minimal wage for their life sustenance. These families encounter the challenges of poverty and every day going to colleges and university other than field is simply a fancy to them. One of the dimensions of social demand i.e. education at a minimal cost is offered by NSOU. Education for all is our mission so educating mass at a minimal cost is a necessary pre-requisite to fulfill the goal and develop the nation.

vi. Student's Attitude and Expectation from Open and distance learning:

The study of student's attitude is important as it has a relationship with expectation and their contentment. Attitude reflects their notion regarding the existing condition, mode and nitty-gritty. A positive attitude towards a subject eventually ensures higher satisfaction and better productivity. In order to understand the success of a programme or course, we must take the attitude of the students into account.

a. Convenience in reaching the Personal Contact Programme (PCP) classes or examination venue:

PCP class in NSOU like any other open university is not compulsory for students but conducted regularly for giving the students more opportunity to verify their doubts from the counselor. But consecutive practical classes for elective subjects are compulsory. But for subsidiary subjects the practical is conducted for 10 days starting after Durga Puja but continues in weekends after the festive break. Students of Jalpaiguri and Dinajpur mentioned that they faced a lot of trouble to reach exam venue as they have only one study centre

conducting practical and public transportation is difficult in that area. But more than 60% were satisfied with the issue and they said as classes were only held in weekends or practical for 12 consecutive days for elective subjects so they can manage it easily. They were happy to compensate the journey or trouble for attaining higher education.

b. Opinion regarding SLM and university provided Students Learners Support:

Maximum numbers of students (49.77%) have responded in favor though they were under no compulsion and they were assured that their identity would be kept confidential at all circumstances when asked about the quality of the self learning material or overall student's learners support provided by the university.

c. Prioritizing ODL over regular courses:

Success of a programme lies behind the satisfaction of its beneficiaries. A huge number of students (25%) undoubtedly expressed their opinion and mentioned that even if they get an opportunity to get them enrolled in a regular course they would still continue with this distance education. Various causes motivate learners to take up further studies and courses in Open University. Maximum number of them stated that they got enrolled in NSOU as the university provide a lot of flexibility regarding –time/ eligibility/academic assignments/ necessary requirement (39.12%), cost effectiveness (27.31), easy enrolment (20.83%), available study material (1.6%) and other pre-commitments (6.9%) Students with prior commitments had no resort to study further but Open and distance learning at such a meager cost provided by NSOU is like a boon to them.

CONCLUSION

Universities like NSOU catering Open and Distance Learning try to strengthen the vision of catapulting our nation as a knowledge superpower. The practice of implementing already framed regulation in educational institution is not adequate in countries like India; as we have to invent new effective ways to ensure education for all. We first need to clearly identify the strengths and weaknesses of our existing delivery system and then ensure efforts to rectify our flaws to reap the maximum benefits of the institutional delivery. Some possible change or new idea incorporation in the delivery system would provide more flexibility. That would offer opportunities to people with special needs, desperate urge to access higher education and thus contributes to equality in education breaking the cycle of poverty. NSOU in order to ensure equality in education should consider few essential requisites like arranging Laboratory Counseling cum Evaluation Session (LCES) in small scale for some individual especially girls, who fail to attend few LCES classes due to some unavoidable circumstances. The University should arrange accommodation facility for women students coming to laboratories from distant places during practical session. This kind of flexibility or provision will trigger knowledge revolution in India and contribute towards a human-centered development.

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