

# **Role of Science Education in Human Resource Development:**

## **A case study of IGNOU**

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### **INTRODUCTION**

Open and distance education is now being accepted worldwide as an alternative teaching-learning and training medium. It was quite popular in teaching courses in Humanities and Social Sciences at the higher education in the country since 1962. The emergence of distance education and use of information and communication technology (ICT) made this mode effective in delivering courses in disciplines which needed intensive practical and face to face situations. In spite of the potentialities of the media and self-learning nature of the instructional/training modules, many obstacles have been encountered in teaching practical base courses like courses in Science and Technology, Agriculture, Nursing, Medicine, Vocational Training and so on.

IGNOU aims at democratization of higher education and maintenance of high standards covering larger segments of population, vocations and professions. Besides, it has to encourage and strengthen the open and distance education system in and outside the country. The School of Sciences is developing programmes in science disciplines. School has developed 92 courses, of which 62 courses are on offer in the B.Sc. programme. The other 30 comprise of Ph.D., M.Sc., Diploma, Certificate & Appreciation courses. Recently School has started face to face M.Sc programmes in Chemistry and Life Sciences.

### **SCIENCE EDUCATION**

The Bachelor of Science (B.Sc.) programme was started in the pilot phase in 1991. The first batch had 1100 students in 29 study centers scattered all over the country. Today there are about 6000 open science learners pursuing Bachelor in Science through 165 study centers in the country. The open science education programmes for undergraduate level of University are given below:

Bachelor of Science (B.Sc.) Botany  
Bachelor of Science (B.Sc.) Chemistry  
Bachelor of Science (B.Sc.) Mathematics  
Bachelor of Science (B.Sc.) Physics  
Bachelor of Science (B.Sc.) Zoology  
Bachelor of Science (B.Sc.) General

### **Duration of the Programme**

This Bachelor Degree Programme in Science is a three years programme with 96 credits weightage. In the University learning, load has been quantified in terms of credits. A credit worth of learning material signifies learning time of 30 hours for an average learner. It includes all activities pertaining to study one credit worth of learning material i.e., going through the material, doing assignments, viewing telecasts, listening to broadcasts and audio programmes in cassettes, radio and conventional counseling, library consultations, laboratory and other field based practical activities and so on.

Today an open science learner is eligible to opt for Bachelor in Science in five major disciplines i.e., Chemistry, Life Sciences (Botany and Zoology), Physics and Mathematics. The life Sciences specialization has been bifurcated into two major programmes i.e., Botany and Zoology. This programme is also on offer to the Indian work forces working in other countries; therefore it has International reach-beyond the national boundaries.

### **Objectives of the Programme**

The main objective of IGNOU's B.Sc. programme is to provide opportunities for higher science education to those who missed a regular education (working persons, those living in rural or remote areas, housewives and also for economic and opportunity reasons) and to create scientific attitude towards life. So far, more than thousand learners have successfully completed the B.Sc. programme. They have been received well and many of them have got admission in postgraduate programmes in premier institutions of India and abroad.

The Bachelor's in Science is a stand alone programme consisting of various courses. The courses developed by the School have been in use by other School/programmes of studies. Science and Technology has always been viewed as an effort to systematize knowledge and inculcate a logical approach in the study of any subject.

At present, among 14 Open Universities, five are offering Bachelor's degree programmes in Science. Present study investigates the learners' perception of the value of Science education of IGNOU's B.Sc. programme.

### **REVIEW OF LITERATURE**

Very few empirical research studies have been conducted by the scholars related to the present theme of the study i.e. learners' perception towards benefits and employability of distance education. The review has shown some mixed reaction of the learners on the perception and benefit of distance education. For example, Mullick and Mullick (1995) found that high proportion of students perceived the programme 'most useful' for 'knowledge enrichment' followed by 'professional competencies' and pursuing 'higher studies'. However, it was 'somewhat useful' for changeover to a better job and/or an organization. As regards the various aspects of the instructional system, the study material and design (syllabus/curriculum) had been opined to be 'excellent'.

Raza (2004) reported on the difficulties encountered in measuring outcomes in open and distance learning, and highlighted that the existing studies therefore give rather crude measures in terms of completion, graduation and examination results. Woodley and Parlett (1983), in another study, based on wastage rates i.e. students who withdrew and

failed in undergraduate courses in a given year in the university, suggested that outcomes were better in lower level courses, and courses in the social sciences. A subsequent study by Woodley and Simpson (1999) on rates of return also suggested that while graduation from the University was likely to be associated with increased earning, the increase was greater for women than for men. Woodley et al (2001) found that completing UKOU courses led to a salary increment; 17% stated that the UKOU course had led to a new occupation. The study suggested a significant shift out of existing occupations, particularly for those employed in manual employment and at the lower-end of non-manual strata.

Gaba (1999) examined the experiences of IGNOU graduates in the job market and found that out of the 13.52% of the total graduates, whose main reason for joining the course was to get a job, 24% of them had been successful. Of those who desired promotion (10.32%), 28% achieved their goal. Most of the UK studies reported that other types of skills, more than specialized knowledge were being valued by the employers. In their study of survey of employers of university graduates in Sri Lanka, Gunawardena (1997) found that communication skills emerged at the top with almost 37% of employers specifying these skills, followed by the next highest ranked four characteristics as appearance, grooming, manners(31%) interpersonal skills/ability to work in a team/concern for others (29%) and leadership (27%).

Gaba (2005) found that respondents of BIT online programmes got regular job and those who were doing regular job joined post graduation programme through distance mode in different institutions. Most of the students of BIT online programmes students got regular job and registered in post graduation programmes like MCA and MBA programmes in various institutions.

A brief review of related studies indicates that in ODL programmes there was a lack of interaction between industry and distance teaching institutions. Employers also perceived that they were looking for appropriate skills among distance learners at the time of recruitment.

## **DISTANCE EDUCATION AND HUMAN RESOURCE DEVELOPMENT**

There has been significant progress in human development in India as reflected in broad indicators viz. improvements registered in educational attainments, health coverage, and in provision of basic social infrastructure. HRD in India is at present characterized by a good deal of imbalance in terms of region, gender and levels of education. There are disparities in the secondary and higher levels of education as well as the level of educational attainment of different population. For reducing these disparities, use of modern communication technology has been emphasized, and distance education had been adopted using a variety of means and methods including videoconferencing and computer based learning. Distance education has created the possibility of and has the potential to provide large-scale multi-media education for the development of human resource. At present, besides the Indira Gandhi National Open University (IGNOU), there are 13 state open universities (SOUs) and about 128 dual-mode distance teaching institutions are offering programmes through distance mode in the country.

## OBJECTIVES OF THE STUDY

- To examine the learners' goal for joining B.Sc. programme with IGNOU.
- To find out the learners' perception of the value of IGNOU's programme in terms of getting employment, promotion and continue education etc.
- To find out the utilization of graduate degree.

## RESEARCH METHOD

The study is based on survey method. The questionnaire was administered among randomly selected 500 graduates of B.Sc. programme who passed out at the time of December 2009 term end examination. The sample was selected randomly in terms of equal percentage of distribution i.e. learners' geographical background, age and gender. Only 76 filled in questionnaires were received at the time of writing this report. In addition to this published and unpublished documents were also used for research purpose. The respondents' views were compiled, tabulated, analyzed and presented below.

## FINDINGS

- Out of total 76 respondents, most of them were in the age group of 21-30 years (90%).
- Most of them (74%) were females.
- Majority of them (79%) belong to general category and rest of them were from OBC category.
- The percentage of married respondents (58%) was higher than that of unmarried respondents (42%).
- Of the total 76 respondents, most of the respondents (68%) were from urban area and rest of them were from rural and semi-urban area.
- The large majority of the students were on the job (47%) followed by fresh students (57%) unemployed (11%) and self employed (5%) at the time of joining B.Sc. programme in IGNOU
- Majority of the students (42%) informed that they joined distance education system because of its flexible schedule of teaching learning. The same percentage of students said that 'no upper age limit' is the reason for joining the ODL system.

## Reasons for joining IGNOU

**Table 1: Respondents' views (In Percentage)**

S. No.	Statement	Agree	Disagree	Can't say	Mean	SD
a	IGNOU degrees are recognized by employers and other universities	90	--	10	1.21	0.63
b	IGNOU study centre was near to my place	52	42	6	1.52	0.61

c	IGNOU is a very reputed and widely respected	89	--	11	1.21	0.63
d	IGNOU degrees are widely respected	100	--	--	1.00	0.00
e	IGNOU provides lot of flexibility in doing the courses	90	5	5	1.15	0.50
f	IGNOU adopts multiple-media approach, which is better than traditional distance education of other distance teaching institutions	69	5	26	1.57	0.90
g	IGNOU facilitates job placement	26	21	53	2.26	0.87
h	IGNOU degrees help in getting a job or getting promotion in the job	52	10	38	1.84	0.95
i	I did not get admission in any other open university or distance learning institutions	5	68	27	2.21	0.53
j	My friends and well wishers advised me to join IGNOU	63	26	11	1.47	0.69
k	Any other	79	5	16	0.52	1.12

- It is interesting to note here that 42% respondents disagreed with statement that nearness to IGNOU study centres from his/her place was the only reason to take admission in IGNOU. On the other hand 68% respondents also disagreed that their friends and well wishers advised them to join IGNOU.
- The goal of most of the respondents (70%) was to get higher education, 20% affirmed to get a degree as a matter of additional qualification; and 10% were to get promotion (career advancement). Of the total 70% respondents, who said that their goal was to get higher education, majority of them were married, females, and belonged to the age group 21-30 years.
- The respondents' views were contradictory here. For example, those respondents who said that their goal was to get higher education; few of them also informed that they perceived degree would further help them in getting a job.
- Of the total 76 respondents, 79% informed that their determination helped them to complete the programme. Rest of them (21%) informed that the course could exactly meet their personal needs, which motivated them to complete the programme.

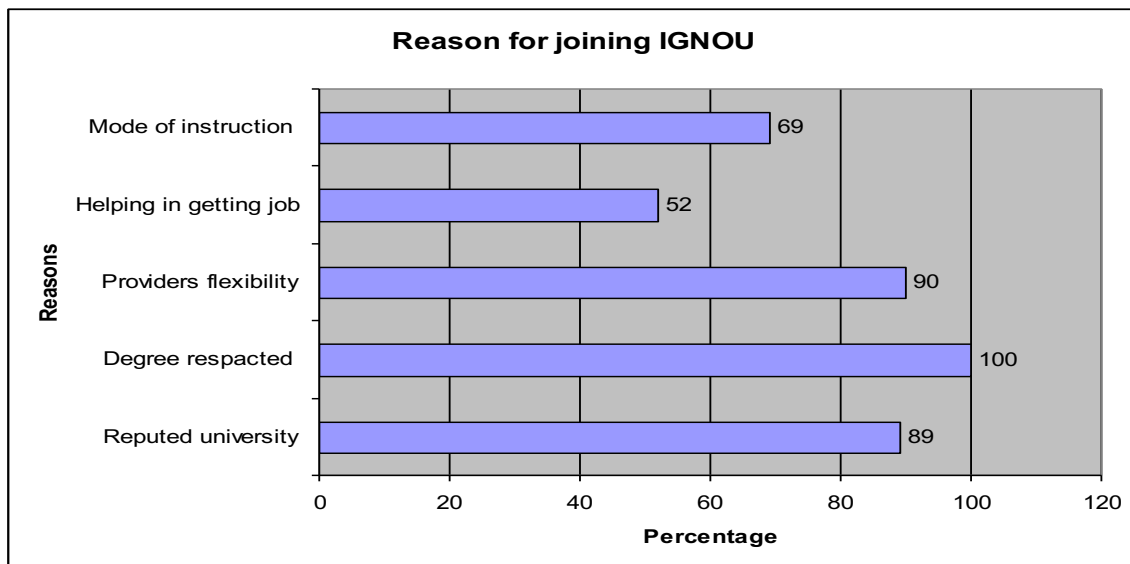


Figure 1: Respondents' views on joining IGNOU's programmes

### Respondents' Status before and after completion of the programme

- Of the total 47% respondents who were on the job before joining IGNOU programme, 11.38% got promotion at their organization.
- Among 37% who were students at the time of joining IGNOU, 14.76% got job.
- Rest of them were pursuing higher education programme from different institutions in the country and searching for job.
- Those who were on the job at the time of joining IGNOU, most of them (42%) were earning Rs. 10000-15000 per month.
- About 70% of the total on the job respondents changed their job after obtaining degree from IGNOU. They joined bigger institutions where more than 150 employees were working.

### To what extent IGNOU degree help them in obtaining and changing job

**Table 2: Respondents' views**

Respondents' Views	Percentage
(a) As the first prerequisite	25
(b) One of the prerequisite for the job	38
(c) Not at all helpful	37
Total	100

The above table indicates that the respondents' views varied in terms of the value of IGNOU for getting a job.

## Importance of the Content for Getting a Job

**Table 3: Respondents' views**

S.No.	Options	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a)	The programme helped me in getting my job.	-	26	21	47	6
b)	The programme enhanced my skills required for the job.	-	31	21	37	11
c)	The programme helped me in improving my job performance.	-	16	26	52	6
d)	Due to specialized course offered within this programme I was able to get my present job/got a new job.	-	21	32	42	5
e)	Due to this programme, I am now more confident and able to handle my present job.	-	5	16	64	15
f)	Due to this programme, I am able to work effectively as a team member/leader	-	16	26	52	6
g)	This programme did not help me at all in my job.	-	27	21	47	5

- Majority of the respondents (70%) informed that they did not face any problem in getting a job or promotion after obtaining degree from IGNOU.
- Majority of respondents were satisfied with the services of study centres (79%), regional centres (85%), and Head Quarters (82%).
- Majority of the respondents (70%) were moderately satisfied with the programme, 21% were highly satisfied and 9% were least satisfied.

- About 90% respondents informed that they will recommend their friends, relatives or colleagues to join programme from IGNOU.

## **DISCUSSION**

It has been observed from the above analysis that most of the respondents joined Distance Education system because of its flexible characteristics and their goal was to get higher education and job. They perceived that the degree will help them to continue education, upgrade their knowledge and means of getting job. However, in some cases their views were varied. Earlier research studies show that distance learners do share broad demographic and situational similarities that have often provided the basis for profiles of the typical distance learner in higher education. One has to be careful in using distance education strategies for providing science education, because there has to be greater face-to-face participation in practical classes. It can be conducted through Information and Communication technology (ICT). Using ICT in ODL will help to learn more skills. Further, education through ICT can raise the employment opportunities in many ways as it helps to get continuous & flawless education which not only enhances the learning skills but also adds in the human resources building for the developing nation like India.

The findings of this study suggest that the learning model and courses in this programme equip learners with necessary technical skills for performing their job better. The pattern revealed by the present study is in general conformity with the findings of the earlier studies. Employers will take an advantage of online initiatives, to minimize the costs associated with traditional training (e.g. travel), and provide flexibility for workers to be able to manage work and learning simultaneously, on their respective work places. There is also possibility that employer may not give preference to fresh graduates for appointing them at their respective enterprises who passed out from on-line mode of delivery. There has been written many times about what employers think about the graduates that universities produce. But, less has been talked about in the context of graduates that university produce through different mode i.e. open, distance and online delivery of the programmes.

Research has been neglected by most of the decision makers particularly in open and distance learning and online learning environment. The present paper takes, as its starting point, the key shortfalls of research into employer perceptions towards acceptability of graduates from different mode of educational system. It is setting them within the wider context of research and policy documents on the subject. The research provides empirical insights into a number of policy debates in the delivery of higher education programme as pointed earlier (Gaba, 2005).

## **RECOMMENDATIONS**

There are a number of issues facing distance education and online education that form useful direction for research. For instance, how should we cater for the differing expectations of B.Sc learners through ODL into online environment? Although this is a small survey, which has shown a little change of the respondents' career path, but it is the gray area of research, particular in science and technology programmes. The present study is not a final one, further research requires to be conducted at macro level on the employers' perception.



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