CHAPTER- I: SIGNIFICANCE

1.0 INTRODUCTION

In this chapter the researcher presented the scenario of the demand for higher education in India and the need for democratization of higher education, initially through correspondence education and through distance education. In this chapter the role of open universities, which emerged in the area of distance education with quality and credibility of academic programmes are discussed. The rationale of the study in the context of the permission from national bodies and presented the significance of necessary steps to be taken for the quality and credibility of academic programmes.

1.1 DEMAND FOR HIGHER EDUCATION AND LIMITATIONS OF CONVENTIONAL UNIVERSITY SYSTEM

Indian universities have a special responsibility to strive as the ‘conscience of the nation’ as assessors of the national way of life, and this responsibility becomes greater in the absence of an enlightened public opinion.

There has been an increased demand for higher education in India. This has been on one hand, due to the man power requirements of a modernized self-reliant economy and on the other; due to the vertical push of the expanded secondary level of the educational pyramid. Consequently, the number of universities (including institutions deemed universities) increased from 27 in 1950 to 278 in 2000. India has one of the largest systems of education in the world. It has 237 universities, 10,600 colleges, 41 deemed universities, 70.78 lakh students and 3.31 lakh teachers. In spite of tremendous increase in the traditional universities, the system could not meet the demand of people in India for higher education. To meet the demand initially, people were permitted to obtain university degrees privately. In the system, study was completely individuals’ responsibility and the universities along with regular university students conducted examination. However, it was only a small fraction of the Indian society which could obtain university degrees privately. Most individuals could not succeed without any assistance in studies. Such difficulties forced educationalists to think of certain ways of providing education to individual learners at distance, which could supplement the formal of higher education.
1.2 DEMOCRATISATION OF EDUCATION AND ROLE OF OPEN UNIVERSITY SYSTEM

The formal system of education remained inadequate to meet the increased demand of higher education in the country. Moreover, it invited criticism, that, large amount of money is being spent for higher education and primary education is being neglected. It was also noticed, that, the formal system of university education could not serve the rural India as effectively as it did for urban. In addition to this, a large section of people could not enter the fold of formal education due to its non availability in the locality (rural areas), rigid procedures of time, place, attendance etc. People in job cannot meet formal requirements of the universities. In order meet the requirements of such a clientele, a more flexible channel of education was needed. Initially, though the correspondence Education was introduced in 1962, the distance education emerged as a novel system of education to supplement the formal system. It appeared to be feasible with the advancement of science and technology. It provided big support to the learners who were trying to obtain university degrees privately.

1.2.1 Correspondence Education

The correspondence education in India is about five decades old. Its beginning can be traced to the efforts made by the Government of India when the Ministry of Education appointed an Expert Committee of Correspondence Education in March 1961. The committee worked under the Chairmanship of Dr.D.S.Kotari, the then Chairman of the U.G.C, to work out the pattern and relevant details of the scheme of correspondence course, prepared as an item under the third five year plan. The committee recommended the following:

Correspondence courses leading to a degree or equivalent qualifications should be administered by universities only. For part of the course there should be personal contact between teacher and taught, ‘contact’ classes be organized on a tutorial basis in preference of lectures. To maintain educational standards it would necessary to associate top rank scholars and teachers with the preparation of courses and selection of text books. Some arrangement should be made to organize work by so as ensure to continuing improvement in the quality of work. The correspondence method is suitable to be used in both sciences and humanities. However, in view of organizational difficulties, the courses were started only in the faculties of Arts and commerce. Science should be incorporated as early as possible. Two supplementary aids
a) Refresher course, and  
b) Use of radio and television was to be made in order to raise standard in spoken language and to correct a too easy reliance on the written word.

Correspondence courses should be run in the first instance by one university i.e., the University of Delhi, and the subjects to be included in the courses as well as the details of administration should be decided by the university.

Consequently, the Directorate of Correspondence courses was established in July 1962, in the University of Delhi, as a pilot project, to enroll students from all over the country for the first degree course in Arts, Commerce and Social Sciences, in the year 1967. On the recommendations of the University of Delhi, the U.G.C. agreed to make the Directorate of Correspondence courses permanent. The success of the experiment encouraged other universities to start instruction through the distance mode of education. Gradually large number of universities started institutes/ Directorate of Correspondence courses during the decade 1970-80.

It may be mentioned that the Directorate of Correspondence Education are affiliated to the conventional universities, indicating that they are not autonomous bodies in view of academic and administrative affairs. The parent universities have the final say on the matters of course creations, norms of Distance Education studies, examination appointment of staff, finance etc. In case of correspondence education only a section of the left out population is absorbed by the correspondence education. Realizing the rigidities in correspondence education more flexible type of education was thought of to accommodate the increasing aspirants of higher education. The alternate system, which emerged in the area of Distance Education, was the establishment of Open Universities.

**1.2.2 The meaning of Distance Education**

The term ‘Distance Education’ refers to a system of education in which a learner gets education remaining, mostly or completely at a distance from the teacher or teaching institution. Different media like print material, radio, television, video, telephone, email, chat-line creates the link between teachers and a student. According to Holmberg (1977), “Hence, in distance Education, because of the physical separateness of learners and teachers, the interactive as well as the preparatory phase of teaching is conducted through print, mechanical or electronic devices.”
1.2.3 Open Universities

The concept of Open University has emerged to meet the rapidly changing needs of the society. The availability of new technologies has triggered a revolution of knowledge and communication, which hold promise of bridging the gap between distances and differences.

The Open University occupies a unique position in Distance Education because of its autonomous characteristics. The Open University opens door for many who have the capacity to do a particular course, but, do not have the required qualification for admission essential in formal universities and correspondence course. The flexibility provided by the Open University in the selection of courses and in the system of admission has helped many learners to acquire knowledge and skill in the courses of one’s own requirements, interest and aptitude.

The idea for the establishment of Open University in India was mooted in 1970. The Ministry of Education and Social Welfare in collaboration with the Ministry of Information and Broadcasting and the U.G.C., New Delhi organized a seminar in December 1970. In the seminar Prof. V.K.R.V. Rao, the then Education Minister said that, “The new interesting programme of instruction, based on modern science oriented educational technology for students of higher education in the Open University should be made available to this much larger body of population which remain outside the so-called university system.” Many other participants expressed similar views and the seminar suggested the establishment of Open University. As a result of the suggestions, the Government of India appointed a working group under the chairmanship of Mr. G. Parthasarthy, the then Vice-Chancellor of Jawaharlal Nehru University, Delhi, in 1974, to examine the feasibility of establishing an Open University in India. For the first time in India, the Andhra Pradesh Open University (APOU), which is now known as Dr. B.R. Ambedkar Open University, was established under the state legislature act 25th August 1982. The number of Open Universities since then has been increasing. The number of Open Universities established till 1998 along with their year of establishment is given in Table 1.1


<table>
<thead>
<tr>
<th>S.No.</th>
<th>University</th>
<th>Year of Establishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dr. B.R Ambedkar Open University (Dr.B.R.A.O.U.),Hyderabad, Andhra Pradesh</td>
<td>1982</td>
</tr>
<tr>
<td>2.</td>
<td>Indira Gandhi National Open University, Delhi</td>
<td>1985</td>
</tr>
<tr>
<td>3.</td>
<td>Vardhaman Mahaveer Open University, Rajasthan</td>
<td>1987</td>
</tr>
<tr>
<td>4.</td>
<td>Nalanda Open University (NOU),Bihar</td>
<td>1987</td>
</tr>
<tr>
<td>5.</td>
<td>Yeswanth Rao Chauan Maharastra Open University (YCMOU), Nasik, Maharastra</td>
<td>1989</td>
</tr>
<tr>
<td>6.</td>
<td>Dr. Babasaheb Ambedkar Open University, Ahmedabad, Gujarat</td>
<td>1994</td>
</tr>
<tr>
<td>7.</td>
<td>Karnataka State Open University, Mysore, Karnataka</td>
<td>1996</td>
</tr>
<tr>
<td>8.</td>
<td>Netaji Subhas Open University</td>
<td>1997</td>
</tr>
<tr>
<td>9.</td>
<td>Madhya Pradesh Bhoj Open University,Bhopal, Madhya Pradesh</td>
<td>1997</td>
</tr>
<tr>
<td>10.</td>
<td>Uttar Pradesh Rajarshi Tandan Open University, Uttar Pradesh</td>
<td>1999</td>
</tr>
<tr>
<td>11.</td>
<td>Tamilnadu Open University, Tamilanadu</td>
<td>2002</td>
</tr>
<tr>
<td>12.</td>
<td>Pt. Sunderlal Sharma Open University, Chattishgarh</td>
<td>2005</td>
</tr>
<tr>
<td>13.</td>
<td>Uttaranchal Open University, Uttarkand</td>
<td>2006</td>
</tr>
<tr>
<td>14.</td>
<td>K.K Handique Open University, Assam</td>
<td>2006</td>
</tr>
</tbody>
</table>

Source: Krishna (2009).*The need for an Open University in Kerala. University News 47 (42)* p-10

Out of the 14 Open universities, the Dr. B.R. Ambedkar Open University is the first Open University in the country. The development of the Dr. B.R. Ambedkar Open University is specifically discussed in the following.
1.3 THE Dr. B.R. AMBEDKAR OPEN UNIVERSITY

The university was established in August, 1982 by Act of the State Legislature. It was inaugurated by the President of India. The University was renamed as "Dr. B. R. Ambedkar Open University" on 24 October 1991 after the Architect of the Indian Constitution Dr Bhimrao Ramji Ambedkar on the occasion of his birth centenary. The principal aim of the University is to provide an opportunity to those who are not in a position to avail themselves of the facilities for higher education through regular on-campus study at conventional colleges/universities. It adopts a flexible approach to eligibility, age of entry, choice of courses, method of learning, conduct of exams and operation of educational programmes. The University makes use of a variety of learning media including Radio, TV film, audio cassette and the printed study material, besides arranging contact and counselling programmes and Science Practical’s which makes for the traditional teacher-student interaction. The University functions through a network of 117 Study Centers located in the twin-cities of Hyderabad and Secunderabad and all the districts of the State. The Study Centers are located in selected colleges throughout the State from which they draw their counselling staff who are experienced members of their teaching staff. The students receive guidance and counselling from the Counsellors at the Study Centers. (Wikipedia, 2011).

1.3.1 Objectives of the University

The objectives of the University stated in the Act (1982) and as amended in 1991 are:

1. To provide educational opportunities to those who could not take advantage of institutions of higher learning;

2. To realize equality of educational opportunities for higher education for a large segment of the population including those in employment, women including housewives and adults, who wish to upgrade their education or acquire knowledge and studies in various fields through distance education;

3. To provide flexibility with regard to eligibility for enrolment, age of entry, choice of courses, methods of learning, conduct of examinations and operation of programmes;
4. To be complementary to the programmes of the existing Universities in the State in the field of higher learning so as to maintain the highest standards on par with the best Universities in the country;
5. To promote integration within the State through its policies and programmes;
6. To offer degree courses and non-degree certificate courses for the benefit of the working population in various fields and for the benefit of those who wish to enrich their lives by studying subjects of cultural and aesthetic value;
7. To make provision for research and for the advancement and dissemination of knowledge.

1.3.2 Organization System

The Governor of Andhra Pradesh is the chancellor of the university. The Executive Council, Academic Senate, Planning and Monitoring Board, Finance Committee are the important authorities of the university. The Vice-Chancellor, Rector, Executive Director(GRADE), Directors, Deans of the Faculties, Heads of Departments, Registrar, Finance Officer, Controller of Examinations, Development Officer, University Engineer, Public relations officer are some of the functionaries of the university. The university is mainly structured around its Faculties (Academic Units) and functional units supported by administrative units. Academic, Student Services, Material Production, Staff Training and Development, Evaluation, Audio-Visual Production and Research are the main functional units of the university. The women's Development and extension center and the S.C /S.T cell are created to give prioritized attention to socially disadvantaged groups. GRADE (G .Ram Reddy Research Academy of Distance Education) is established on 19.01.2001 to promote research and extension activities. Additionally, 90 academic staff and around 400 administrative, Technical and support staff work in different branches at headquarters and study centers. The organization structure of the university is given in figure 1.1.
1.3.3 Instructional System

BRAOU (Dr. B. R. Ambedkar Open University) adopts a multimedia approach for instruction, i.e., printed Programs material, radio lessons, audio and video lessons, contact-cum-counseling classes, winter and summer schools for intensive coaching by experts. The Programs materials, including radio and video lessons in each subject, are selected and prepared by a team of Programs writers, editors and translators in collaboration with specialists in various disciplines from different Universities, Research Institutions and other relevant organizations. The printed materials are sent to the student through postal or courier services. The cassettes are made available through the study centers. The University keeps in touch with its students spread over the entire State through regular mail. Between fifteen to twenty letters are dispatched to each
student in a year. The university has so far published more than 250 volumes of Programs materials, covering as many as 30 different disciplines. The instructional system of the university is given in figure 1.2.

**Figure 1.2. The instructional system of BRAOU**

![Diagram of the instructional system of BRAOU](image)

1.3.4 Access

a) *Access to Disadvantaged Groups*

In assessing the quality and effectiveness of higher distance education programmes the issue of access and equity becomes prominent. This is because the most commonly acceptable and least contentious rationale for introducing distance education is its potential for increasing access to higher education especially for disadvantaged sections of society. Reasons given by some people on why they choose the distance education option further underscore both the access and equity rationale for distance education. For example, some people choose distance education because they may feel psychologically and geographically distant from conventional institutions or they find conventional systems in conflict with their work, leisure, civic and social commitments
(Verduin and Clark, 1991, 103). For these people and others, who were excluded from conventional systems for reasons beyond their control, access to and participation in university education has only become possible through distance learning. Accordingly, when assessing the effectiveness of distance education from an access and equity perspective, one should seek answers to questions such as 'How many students?', 'What is their composition?' Hence, one should not be satisfied with the overall enrolment figures, but should probe further and find out the extent to which distance education systems are meeting social and individual needs of adult learners and disadvantaged groups such as women. In terms of the effectiveness of higher distance education in increasing overall access to education, its potential has been most impressive in developing nations. A 1990 UNESCO report cites several success stories, especially in Asia. For example, the STOU of Thailand started in 1980 with an intake of 82,000 students which doubled to 150,000 by 1990. In India, Indira Gandhi National Open University's IGNOU postgraduate enrolment increased from 4,500 in 1987 to 30,000 two years later.

The role Dr. B.R. Ambedkar Open University in higher education in the state in terms of access and reach to different equity groups-disadvantage groups, women, and rural people. From the research studies it is evident that from the enrollment of students that the largest proportions are from Other Castes and Backward Classes. The students from the Scheduled Castes and Scheduled Tribes occupy the 3rd and 4th positions in their proportion. From the research studies, it is evident that, more and more students from SC and ST categories are able to access higher education through BRAOU. To a large extent this increase can be attributed to the policies of the university taken from time to time in favour of Schedule Castes and Tribes with regard to the relaxation of passing marks in the Eligibility Test and exemption of their total tuition and other obligatory fees.

**Table 1.2: SOCIAL CATEGORY WISE ENROLMENT OF STUDENTS IN FIRST YEAR UNDERGRADUATE PROGRAMME IN BRAOU (1983-84 & 2009-10)**

<table>
<thead>
<tr>
<th>Year</th>
<th>ST</th>
<th>SC</th>
<th>BC</th>
<th>OC</th>
<th>Total</th>
<th>ST%</th>
<th>SC%</th>
<th>BC%</th>
<th>OC%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983-84</td>
<td>65</td>
<td>498</td>
<td>1868</td>
<td>3800</td>
<td>6231</td>
<td>1.04</td>
<td>7.99</td>
<td>29.98</td>
<td>60.99</td>
</tr>
<tr>
<td>2009-10</td>
<td>5033</td>
<td>16345</td>
<td>34642</td>
<td>21398</td>
<td>77418</td>
<td>6.5</td>
<td>21.11</td>
<td>44.75</td>
<td>27.64</td>
</tr>
</tbody>
</table>
b) Prisoners

A special feature of Dr. BRAOU is its educational service to disabled group of the society. Disabled groups are a collective name for a variety of people. Prisoners are a disabled group in a wider sense as they are not able to move in the society and are confined to the four walls of the prison. BRAOU, the first distance teaching university in the country, has extended the opportunity of pursuing higher education to the prisoners since 1988. The total number of prisoners enrolled in the year 1988-89 was 41 and it was increased to 190 for the year 2009-10.

c) Access to Female Students

The average ratios of male and female students of BRAOU were 85:15 in 1983-84 and 60:40 in 2009. From the above ratios, the male and female students of BRAOU reflect that the number of females are accessing higher education has been increasing. (Venkaiah, V. 2010)

Table 1.3: GENDER-WISE ENROLMENT OF STUDENTS IN FIRST YEAR UNDERGRADUATE PROGRAMME IN BRAOU (1983-84 to 2009-10)

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>MALE (%)</th>
<th>FEMALE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>983-84</td>
<td>5296</td>
<td>935</td>
<td>6231</td>
<td>84.99</td>
<td>15.01</td>
</tr>
<tr>
<td>1985-86</td>
<td>11291</td>
<td>4411</td>
<td>15702</td>
<td>71.91</td>
<td>28.09</td>
</tr>
<tr>
<td>1990-91</td>
<td>20002</td>
<td>7502</td>
<td>27504</td>
<td>72.72</td>
<td>27.28</td>
</tr>
<tr>
<td>1995-96</td>
<td>34276</td>
<td>12209</td>
<td>46485</td>
<td>73.74</td>
<td>26.26</td>
</tr>
<tr>
<td>2000-01</td>
<td>33077</td>
<td>15043</td>
<td>48120</td>
<td>68.74</td>
<td>31.26</td>
</tr>
<tr>
<td>2005-06</td>
<td>50409</td>
<td>26642</td>
<td>77051</td>
<td>65.42</td>
<td>34.58</td>
</tr>
<tr>
<td>2009-10</td>
<td>46500</td>
<td>30918</td>
<td>77418</td>
<td>60.06</td>
<td>39.94</td>
</tr>
</tbody>
</table>

It can be seen from Table-1.3 that on the whole all the years witnessed a steady rise in student enrolment in 1983-84 it was 6231 and it has been raised to 77418 in the year 2009-10.

Table 1.4: ENROLMENT OF STUDENTS IN FIRST YEAR UNDERGRADUATE PROGRAMME IN ANDHRA PRADESH IN BRAOU (1983-84 & 2009-10)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>% of growth over previous year</th>
<th>% of growth over Base Year (1983-84)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983-84</td>
<td>6231.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2009-10</td>
<td>77418.00</td>
<td>-5.63</td>
<td>1242.47</td>
</tr>
</tbody>
</table>
d) **Employed Vs. Unemployed Students**

The occupation-wise analysis (Table 1.5) of student enrolment in the first year U.G. programme shows that the number of unemployed students was more than that of the employed students except in the first year i.e., 1983-84.

**Table 1.5: OCCUPATION-WISE ENROLMENT OF STUDENTS IN FIRST YEAR UNDERGRADUATE PROGRAMME IN BRAOU (1983-84 to 2009-10)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Employed</th>
<th>Unemployed</th>
<th>Total</th>
<th>% Employed</th>
<th>% Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983-84</td>
<td>4109</td>
<td>2122</td>
<td>6231</td>
<td>65.94</td>
<td>34.06</td>
</tr>
<tr>
<td>1985-86</td>
<td>6157</td>
<td>9545</td>
<td>15702</td>
<td>39.21</td>
<td>60.79</td>
</tr>
<tr>
<td>1990-91</td>
<td>8364</td>
<td>19140</td>
<td>27504</td>
<td>30.41</td>
<td>69.59</td>
</tr>
<tr>
<td>1995-96</td>
<td>15517</td>
<td>30968</td>
<td>46485</td>
<td>33.38</td>
<td>66.62</td>
</tr>
<tr>
<td>2000-01</td>
<td>15095</td>
<td>33025</td>
<td>48120</td>
<td>31.37</td>
<td>68.63</td>
</tr>
<tr>
<td>2005-06</td>
<td>7740</td>
<td>69311</td>
<td>77051</td>
<td>10.05</td>
<td>89.95</td>
</tr>
<tr>
<td>2009-10</td>
<td>10877</td>
<td>66541</td>
<td>77418</td>
<td>14.05</td>
<td>85.95</td>
</tr>
</tbody>
</table>

It is observed that while the enrolment of non-formal students continued to show consistent trend between 1983-84 and 2009-10. The share of the non-formal students has been consistent with two-thirds of the total student population from 1983-84.

e) **Formal and Non-formal Entry Channels**

The enrolment pattern of formal and non-formal students is quite interesting. Table 1.6 shows the enrolment of the students of both the streams.

**Table 1.6: STREAM-WISE ENROLMENT OF STUDENTS IN FIRST YEAR UNDERGRADUATE PROGRAMMES IN BRAOU (1983-84 to 2009-10)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Stream</th>
<th>Total</th>
<th>% Stream</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Formal</td>
<td>Non-formal</td>
<td></td>
</tr>
<tr>
<td>1983-84</td>
<td>2181</td>
<td>4050</td>
<td>6231</td>
</tr>
<tr>
<td>1985-86</td>
<td>2518</td>
<td>13184</td>
<td>15702</td>
</tr>
<tr>
<td>1990-91</td>
<td>9239</td>
<td>18265</td>
<td>27504</td>
</tr>
<tr>
<td>1995-96</td>
<td>11587</td>
<td>34898</td>
<td>46485</td>
</tr>
<tr>
<td>2000-01</td>
<td>20129</td>
<td>27991</td>
<td>48120</td>
</tr>
<tr>
<td>2005-06</td>
<td>24365</td>
<td>52686</td>
<td>77051</td>
</tr>
<tr>
<td>2009-10</td>
<td>23918</td>
<td>53500</td>
<td>77418</td>
</tr>
</tbody>
</table>
f) Geographical Background

Table-1.7 reveals the details of the students with Urban, Rural and Tribal background. The data with regard to the residence particulars of the students is available only from 1993-94. The average proportions of the three groups, Urban, Rural and Tribal, i.e. 38:57:5 respectively, are maintained throughout the period of study with fluctuations in some years.

Table 1.7: AREA-WISE STUDENTS' ENROLMENT IN 1st YEAR UNDERGRADUATE PROGRAMME IN BRAOU (1993-94 to 2009-10)

<table>
<thead>
<tr>
<th>Year</th>
<th>Area of Residence</th>
<th>Total</th>
<th>% Area of Residence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993-94</td>
<td>13379 15409 553</td>
<td>29341</td>
<td>45.6 52.5 1.88</td>
</tr>
<tr>
<td>1995-96</td>
<td>17684 26433 2368</td>
<td>46485</td>
<td>38.04 56.86 5.1</td>
</tr>
<tr>
<td>2000-01</td>
<td>18959 25157 4004</td>
<td>48120</td>
<td>39.4 52.28 8.32</td>
</tr>
<tr>
<td>2005-06</td>
<td>26904 47218 2929</td>
<td>77051</td>
<td>34.91 61.28 3.8</td>
</tr>
<tr>
<td>2009-10</td>
<td>27233 45152 5033</td>
<td>77418</td>
<td>35.17 58.32 6.5</td>
</tr>
</tbody>
</table>

When the urban and rural student proportions of BRAOU are compared with the proportions of urban and rural populations in Andhra Pradesh i.e. 27:73, one may conclude that BRAOU is successfully reaching out to rural and tribal population in the recent years. The percentage of students from tribal areas has also been considerable.

1.3.5 Flexibility

The Open University System is a learner centered system. As a prominent single mode institution to offer open distance learning in this region, BRAOU provides education to large and diverse groups of students by modelling itself into a flexible system, providing wider access to education by liberalizing educational requirements, using information technology, and employing a robust student services support network.

a) Educational Opportunity-Open to All

All Indian nationals who satisfy the eligibility criteria can seek admission to the academic programmes of BRAOU irrespective of their place of residence. The jurisdiction of the University is the entire state of Andhra Pradesh, unlike the other conventional universities of the state. However, the university does admit students from outside Andhra Pradesh who wishes to study the courses offered by it by allotting them to study centres within Andhra Pradesh for support facilities and examination purposes. The university has now a network of 218 study centres spread over different
districts of Andhra Pradesh. Any student who wishes to study in the university can opt for one of these 218 study centres to complete his/her academic study and write the examination from any of the examination centres in the state.

b) **Academic Programmes – Mode of Entry**

For the undergraduate programmes, there is a dual mode of entry- formal entry and non-formal entry. Students may enter the university by satisfying formal entry requirements i.e., with intermediate or equivalent qualifications. For non-formal students entry is through qualification in the Eligibility Test conducted by the university and producing proof of being 18 years of age or above. For the B.Sc. programme, even without prior qualification in science subjects’ students may opt for science subjects in the second year of the undergraduate programme if they secure the required marks in the foundation course in science and technology in the first year and are working in government, quasi-government and scientific organizations. For the B.LI.Sc Programme, a candidate is eligible if he/she possesses an undergraduate degree and puts in atleast one year service in a recognized library. For the bachelor’s Degree programme in public relations, the candidate should possess an undergraduate degree, and preference is given to those who are working in media-related organizations and public relations organizations. The certificate programme in food and nutrition is an awareness programme and does not require any prior academic qualification, but the student must be 20 years of age.

c) **Lateral entry into Academic Programmes**

The undergraduate programme requires study of a minimum period of 3 years i.e. a student must be on rolls for a period of three years. However, students who have passed the first or second year of B.A/B.Com./B.Sc. from another university are permitted to seek admission directly into the II year under the stipulation that they take the examinations of the courses of I, II and III year of this university as per the regulations. Similarly, a student who has passed the II year courses of the undergraduate programme in another university may seek admission into the third year of BRAOU provided he/she takes the relevant examinations of the II and III year of this university. For the first year foundation courses, however, there is no such exemption and it is mandatory for the student to take the examinations of the four courses. A student who has completed an undergraduate degree from another university and wishes to obtain a second degree from BRAOU, may also apply for admission into the
II year, subject to the condition that he/she takes the first year examination of this university i.e., the foundation courses of the first year U.G. programme and other required optional courses.

If a learner has already studied and passed a course(s) or paper(s) in another university, exemption from studying the same course(s) or paper(s) from this university may be requested. The university may consider such a request if 75% of the syllabus is identical to the syllabus of the BRAOU courses. The credits of the courses are transferred and the learners will be given benefit for their prior academic study.

d) Flexible instructional system

The student is given the freedom either to avail, fully or partially, of the face-to-face counseling classes provided at the study centres or depend on home study. During the home study the student can make use of the printed course text supplied, radio lessons, audio-video programmes, tele-lessons, tele-conferences, and radio phone-in programmes. Keeping the highly heterogeneous nature of the students of Open University in mind, the non-formal learners, the employed, house-wives, and the aged, are given an opportunity to complete the programme within a maximum period of 9 years, with a further extension on readmission as per the academic regulations.

i) Face-To Face Counselling

The university employs academic counselors to provide tutorial support to students. The academic counselors are selected on the basis of their academic qualification, experience and also according to their special interest in teaching students of different age groups, social and linguistic backgrounds. The contact cum counseling classes are conducted at the study centres.

ii) Laboratory Facilities

Student of the B.Sc. Degree programme have practical sessions arranged for them at specified study centres and in the campus at the headquarters.

iii) Examinations

In any year, depending upon their convenience, students can take examinations in all the courses or in any number of courses in which they have already received instruction from the university. Irrespective of the examination results, the students can pursue their studies continuously for three years, though they get the degree only after securing pass marks in all the courses of the programme including the practical examination papers.
In recognition of the current need for a reliable and effective learner evaluation system, the University proposes to computerize the student data and practices for examinations. Networking the activities of student services Branch and examinations branch, a concerted effort will also be made to streamline the continuous assessment of learner performance. Question Banks will be developed for moving towards meeting variable client needs for on-demand exams and to facilitate declaration of on-demand results. Assessment techniques for differently-able learners will also be researched and adopted.

e) **Flexible Learner Support Services**

i) **Regional Co-Ordination Centres**

In a major step that has been taken, the university has strengthened learner support services by acquiring land at the RCCs for construction of a building to be used as an office for the regional Co-ordination centre and class rooms for learners to assemble for accessing teleconferencing and other audio-visual materials. Unlinking facilities are provided at these 23 District Centres to enable two-way video contact between the headquarters and the RCCs.

All efforts have been made to improve services for learners. For this purpose, 23 regional coordination centres are established in 23 districts of facilitate coordination among the study centres of the district. Specific functions are decentralized to ensure speedy action. The system administration is made more responsive and proactive. Operations in Examination and student services branches are computerized for quick and effective redressal of grievances and provision of services.

The new practice of collection of fees through post offices has enabled the remotest learner to make payments without much hassle. Efforts are being made for timely and responsive support services.

To sensitize distance learners to their responsibilities, the university brought out a learners’ charter which clearly apprised them of their duties and function as distance learners. As adults enrolled for distance learning programmes they need to assume responsibility for their own learning and take positive steps in this direction to reap the greatest benefits from their educational institutions.

ii) **Flexibility In Learner Evaluation System**

Since its inception the university has adopted an examination system whereby the learners exercise their options for taking examinations. They are given the choice to
determine the order in which they take the subjects they have opted for in the second
and third years of the undergraduate programme. They may also write the examination
for the subject they are best prepared for first and the one they need to study further at
later date. The university conducts exams in two spells in an academic year, giving
learners ample opportunities to take examination and to pace their evaluation as they
desire.

iii) Single Window

All efforts were made to improve services for learners. In this direction, the single
window system has been introduced in the university campus a headquarters to provide
all services for learners who come to the headquarters at one counter to facilitate
speedy action in matters such as admissions, dispatch of materials, conduct of
examinations and declaration of results.

The single window learner service centre will also attend to queries from learners
on support service matters and an examination service centre clarifies queries from
learners on examination-related issues. At the grass-root level learners can also have
their queries resolved by direct interaction with the officers of the university through
the on-line teleconferencing facility and email through the university’s website.

f) System Development Measures Towards Flexibility

The technology-enabled administration system has brought sea change operations to
which are of critical value in the provision of learning. The admissions/learner support/
and examination systems have now been streamlined and become accessible through
on-line software that enables prompt action for resolving learner grievances through a
single window approach. The delays incurred by manual data handling have largely
been overcome with the result that greater levels of satisfaction have ensued both for
the users and the functionaries. The data bank development project has also been
initiated to update student records and change earlier data to readily accessible forms.
Old records of learners which have been maintained for the total period of their ‘life’
with the university would soon be available on call.

1.3.6 Innovations

a) Use of Technology: Distance Education- Role of Technology

One of the greatest strengths of ODL is its ability to harness the latest
technologies to reach the unreached. Employing mass media technologies distance
education institutions have bridged distances and made education more accessible.
Communication technology plays a predominant role in the distance education system. It is particularly evident from the fact that distance teaching universities are sometimes referred to as “Universities of Air”. The educational technology which had a modest beginning in 1980 has come a long way and today we talk about computer conferencing, internet, computer based multi-media and what not.

b) **Technological Applications in BRAOU**

Keeping pace with the developments in information and communication technologies, BRAOU is presently using the technology for the following purposes:

- Computers are used at the university headquarters mainly to maintain records; to process examination results.

- Audio-visual equipment, video and tapes are provided to all study centres. The audio visual production and research centre (AVPRC) at the headquarters is well-equipped. Audio visual software is produced and transmitted through the all India radio, doordarshan/mana TV channels Teleconferencing programmes are also put on air regularly covering different subjects. The copies of the lessons in the form of pre-recorded cassettes are supplied to study centres also.

- Basic communication facilities like internet and fax are used extensively in the university.

- Down linking facilities are provided at all the P.G. study centres and regional coordination centres for students to participate in the one-way video and two-way audio teleconferencing.

c) **Audio Visual Production and Research Centre (AVPRC)**

Open distance education has proved to be successful in the world over on account of employing the mass media technology in instruction to its best advantage. In this direction BRAOU made its mark by setting up an exclusive centre, the AVPRC for audio-video production and research into audio-visual production practices. The BRAOU had planned to have three basic types of instructional components, namely print materials, face-to-face counseling and audio-video lessons including broadcast of radio lessons when it launched its academic programmes in 1983. Having realized the importance of audio and video lessons, the university established audio visual production and research centre (AVPRC) in 1986 and started providing audio and video learning materials to students as an essential component. Owing to the potential and reach, radio lessons have been broadcast on a regular basis through the all India radio
since 1983. Initially, the university had adopted the policy of providing audio and video equipment the study centres for the convenience of the students. Until 1998, the major teaching-learning components included self-instructional print materials, face-to-face counseling, radio broadcasts, replay facilities of audio and video lessons at the study centres, etc. A major breakthrough in the instructional strategies was affected when the university conducted an experiment on 15th and 19th March 1999 by organizing ‘live’ teleconferencing from the EMPC OF INDIRA GANDHI NATIONAL OPEN UNIVERSITY to estimate the response of the learners to interactive teleconferencing sessions. The feedback was encouraging and the experiment revealed that the programme was highly useful to the students. As a result, a decision was taken by the university to use telecast and live teleconferencing as and instructional strategy on a regular basis through the Doordarshan channel(DD-8) covering all the subjects and mediums offered by the university. Commencing from 15th November 1999, the lessons are telecast five days a week i.e. Monday to Friday, and the doordarshan has allotted 30 minutes every day, from 5-30 am to 6-00 am to air the university’s programmes.

It was on 5th December 1999 that the teleconferencing was commenced as a regular instructional feature through DD-8. Thus, teleconferencing and telecast have been organized by the university on a regular basis since 1999. In addition to the transmission through DD-8, the university has also become an active user of the regional channel MANA TV and has been allotted two hours regular transmission time every day by the KU band since March 2001.

1.4 QUALITY AND CREDIBILITY OF UNDERGRADUATE PROGRAMMES OFFERED BY OPEN UNIVERSITIES

The changing scenario in open and distance education has radically altered the existence, structures, courses and pedagogies of open and distance education institutions. Open campus learning is an approach to education in which the interaction between teacher and learner takes place at a distance. The place, time modes and pace of study are determined as flexible responses to the particular and distinctive situations of the teacher and learner, the subject matter and the learning environment. This opposes the classic definition of distance education as a form in which the teacher and learner are separated in time and/or space, and can only interact through a variety of media. The open and distance education institutions believe that its continuing
commitments to access and equity, learner independence, and professional relevance demand a flexible and interactive approach to curriculum design and modes of teaching. These institutions are now moving towards a stage in which learning is an individual process. Due to this approach, quality assurance has to develop a range of control mechanisms and assurance processes which cater equally to all its media and modes of teaching and learning. These mechanisms are:

- Course design, approval, monitoring and review
- Faculty board
- Curriculum committees
- Academic board
- Course advisory committees on teaching excellence and quality assurance
- Peer review of distance education materials
- Evaluation of staff, students and employees
- Expert opinion on the materials

1.4.1 Quality Assurance in Open and Distance Learning Materials

This is empowered to approve academic programmes. The detailed proposals approved at this stage are submitted to the executive council, the highest policy-making and administrative authority of the university, for administrative sanction to launch the programmes. The vice-chancellor, the faculty, the co-ordination committee, the academic senate, and the executive council, all serve as a means of assuring the relevance and quality of the programmes at the planning stage.

The relevant details of BRAOU quality assurance activities are as follows:

The main function of BRAOU is the preparation and delivery of educational programmes. Accordingly, quality assurance measures are related to the following six processes:

i) Planning academic programmes;

ii) Developing curricula and learning materials;

iii) Producing learning materials;

iv) Implementing programmes;

v) Reviewing programmes; and

vi) Developing human resources.
\textbf{i) Planning Academic Programmes}

New academic programmes are usually identified by the vice-chancellor through informal discussions with, and suggestions or guidelines received from, the state government, the UGC and other national bodies. The faculty may also initiate proposals. Proposals initiated by either the vice chancellor or the faculty are placed before the co-ordination committee, which is a non-statutory advisory body made up of senior functionaries such as the deans of the various faculties and directors of the various service units. After the coordinating committee approves the proposal, the faculty or department prepares a detailed proposal for the consideration of the academic senate, the highest statutory academic authority of the university.

\textbf{ii) Developing Curricula and Learning Materials}

After a programme is finally approved, an expert committee made up of internal faculty members and external subject experts is constituted to prepare the curriculum. The committee may meet once or twice for this purpose, and the curriculum thus designed is sent for approval to the academic senate. Thus, it is the subject experts and the academic senate who look into the quality of the programme at this stage. The approved curriculum and syllabus are passed on to the course team, which consists of subject experts (both from the university and from outside institutions) and an audio-visual producer, who is designated the editor and is responsible for content editing and the quality of presentation. The language of the materials is edited by language experts. The course team also identifies the audio-visual components of the materials, which developed by the audio-visual centre with the help of the producer and subject experts. Depending on the nature of the course or programme, field practitioners are also associated with the development of learning materials as course writers, editors, or audio-visual programme developers. In a few cases, the print materials are sent to external assessors for their comments, which are subsequently used to improve the materials. The audio-visual materials are previewed by the internal faculty before they are duplicated for use by students. The quality assurance mechanisms that function at this stage include: Editing learning materials for different purposes (content, format, and Page); coordinating with the producer of audio-visual materials and previewing the audio-visual materials before they are duplicated; and orienting the course writers to make them familiar with the quality requirements.
iii) Producing Learning Materials

The learning materials in manuscript form are then printed by the material production division of the university with the help of private printing agencies. They follow a style manual that the university prepares with the help of printers and internal faculty members. Internal faculty members read the final proofs to ensure error free publications. Similarly, the audio-visual unit is responsible for producing audio-visual tapes in accordance with an audio-visual manual prepared by the university. Thus the internal faculty, the audio-visual unit and the printing division are collectively responsible for the quality of print and audio-visual learning materials at the production stage.

iv) Implementing Programmes

When a course is implemented, the three main processes are: distributing learning materials, providing student support services and issuing examinations. Learning materials are distributed from the internal distribution division at the headquarters and they are responsible for preparing and adhering to dispatch schedules. Student support services are provided by a network of study centres at different locations. The directorate of student services located at the headquarters is responsible for ensuring the quality of these services by determining the norms and patterns of support services required at different study centres. The examination branch of the university is responsible for the reliability and validity of evaluation. The schemes of evaluation and the conduct of examinations are developed by the faculty with the help of external experts wherever necessary and are approved by the academic senate and the executive council before implementation.

v) Reviewing Programmes

Learning materials are reviewed on the basis of feedback from learners, counsellors, and subject experts and they are updated by internal faculty members. The university has set up a separate system-evaluation unit, which conducts regular studies on the different aspects of learning materials and implementation processes. The feedback from these studies is used to revise materials and to improve practices.

vi) Developing Human Resources

The university has established a separate unit for staff training and development. This unit undertakes orientation and training programmes for the academic and administrative staff to improve the quality of their services.
1.4.2 Acceptance and Permission from Some National Bodies – Some Issues

Accreditation is a stamp of quality for a distance education university. A typical distance education university gets accreditations from the Distance Education Council (DEC) to establish its credibility. Getting accreditation is subject to meeting certain specifics set by the DEC such as: quality of courses offered, quality of faculties to conduct contact classes, the system of admissions and the system of examinations. Degrees and diplomas earned from distance education universities with accreditations carry more value than unaccredited universities. As the demand for higher education is huge, many dubious institutions started offering courses mainly to make money. There are many universities operating without accreditation and students may enroll in these universities at their own risk. Regular UGC approved universities offering distance education are the safest bets as far as authenticity is concerned. Students should verify the authenticity of a distance education university before enrolling.

Here is a list of bodies that universities and educational institutions apply for accreditation depending on the courses they offer:

- All India Council for Technical Education (AICTE)
- Indian Council for Agriculture Research (ICAR)
- Bar Council of India (BCI)
- National Council for Teacher Education (NCTE)
- Rehabilitation Council of India (RCI)
- Medical Council of India (MCI)
- Pharmacy Council of India (PCI)
- Indian Nursing Council (INC)
- Dental Council of India (DCI)
- Central Council of Homeopathy (CCH)
- Central Council of Indian Medicine (CCIM)

In addition to accreditation, a distance education university should offer courses approved by the above bodies. For instance, if a distance education university is offering a B.Ed. program it should have accreditation from the DEC and also the approval of National Council for Teacher’s Education (NCTE). Students should do due diligence before enrolling in a distance education university.
With a view to promoting excellence in distance education, DEC has forged strong relationships with national apex bodies like University Grants Commission (UGC), All India Council for Technical Education (AICTE), National Assessment and Accreditation Council (NAAC) and National Council for Teacher Education (NCTE). First MoU between DEC and NCTE were signed in 2001 for maintaining quality in teacher education programmes offered through distance mode. The MoU was thereafter signed in 2004 and subsequently in 2007 to have a continued effort in maintaining quality in Teacher education in the country.

Through a MoU, DEC & NCTE have also jointly developed a National M.Ed. programme which was formally launched in August, 2007. It is now kept in the DEC common pool of programmes that any university/ institution can adopt and adapt from DEC/IGNOU and apply to the NCTE Regional Committee for approval of its implementation.

In May 2007 an MoU has jointly signed between UGC, AICTE and DEC agree to work in close cooperation, in pursuit of excellence in Technical and General Education through distance and mixed mode in the country. To ensure quality of technical and general education offered through distance and mixed mode, UGC and AICTE agreed to utilize the expertise and involvement of DEC in such functions as review of the programmes and courses, curricula, norms and standards and approval of new courses and institutions, periodic review of the institutions/ programmes and coordination of inspection and approval activities. This MoU is aimed to avoid the duplication of efforts in streamlining the activities.

a) Quality of Programmes

Distance Education is predominantly a learner-centred system that supports independent learning based on the packaged course. Quality of the packaged course depends largely upon the quality of the learning materials included in the packaged course. In fact, the learning material is the most important ingredient in the entire teaching-learning process. Quality materials can only usher in quality in education.

The DEC has been advocating that institutions offering programmes through distance mode may follow the broad framework for model curriculum prescribed by the UGC. Guidelines for design, development and delivery of programmes through distance mode in general were prepared and circulated to all. Programme specific norms for offering education through distance mode have also been prepared. So far norms and guidelines
for offering programmes in Computer education, Library Science, Management programmes have been developed. For maintaining standards in offering Teacher education through distance mode, the NCTE-DEC have jointly developed norms for Bachelor of Education and Master of Education programmes. Recently the DEC has developed a handbook on how to develop Self Learning Materials that has been widely circulated to all ODL institutions.

Therefore in pursuance of the policy of promotion of quality and standards in the ODL system, DEC had directed all ODL institutions in the country to submit their learning materials to DEC for assessment and evaluation of their quality. It was, in fact, mandatory from 2004 onward for all institutions to seek prior approval of their programmes from DEC before starting any new programme. An advertisement was released in Feb, 2004 in all national newspapers advising institutions to obtain programme approval and institutional recognition of DEC for offering programmes through distance mode.

The Gazette Notification No 44 issued by the Government of India in 1995 further strengthens this. Accordingly-

‘..... the qualifications awarded through Distance Education by the Universities established by an Act of Parliament or State Legislature, Institutions Deemed to be Universities under Section 3 of the UGC Act, 1956 and Institutions of National Importance declared under an Act of Parliament stand automatically recognized for the purpose of employment to posts and services under Central Government, provided it has been approved by Distance Education Council, ..........’

1.5 THE PROCESS OF COURSE DESIGN IN OPEN UNIVERSITY SYSTEMS

1.5.1 The process of course material development in University of Botswana

- Designing the course outlines/structure
- Recruitment of course writers (part-time)
- Training of course writers
- Dividing the course into modules
- Allotment of modules to individual writers
- Review of progress of material through workshops
- Coordination of complete course/modules by the Coordinator
Recruitment of course editors - (part-time)
Training of course editors
Content editing by subject specialists
Language editing
Printing of final copy

The most important part is the training of course writers to prepare the material in self-instructional mode and finally reviewing the material to testify whether it suits to the needs. Since the learner is at a distance, the material is the teacher for the learner. It was also noted that most of the writers are drawn from the full time departments of the University and the rest are the experienced teachers from schools.

1.5.2 The process of Course Material Development at Botswana College of Open and Distance Learning (BOCODOL)

- Designing the structure of courses
- Dividing the course into modules
- Selection of course writers both part-time and full time
- Selection of permanent desk officers - writing materials
- Allotment of modules to the writers
- Editing by subject specialists
- Language editing
- Review of the materials
- Bringing out the final copy of the material for printing

1.5.3 An Integrated Approach for Course Material Development

Well designed interactive course material either in print or electronic technology based, is the foundation for the successful teaching and learning in all the flexible learning modes. In most cases the self-instructional material in the form of print is ideal for all settings. And this course material is a big resource for the distant learner. The material so developed should have suitability, adoptability, compatibility, flexibility, complexity, completeness, appropriateness, distinctness and finally testable and economic. The material should reflect the teacher while the learner reads through the material. To incorporate all such characteristics of self-instructional methods, it is imperative that the planners should design this course material with utmost care and hence an integrated approach can be suggested in the course material development.
1. The first and foremost is setting a representative curriculum which would meet the requirement.

2. Assessment of learners' characteristics and institutional requirement.

3. The team of experts designing the curriculum should set up the standards, duration of the course and modules per course.

4. Planning of distance education methodologies against the media.

5. Uniformity among course components

6. Assignment of writing course modules

### 1.5.4 Adaptation of Traditional Learning Material to Distance Learning Material

Adaptation is the process of modifying learning materials from their original form to a form usable for distance learning. If materials are designed specifically for a particular learner population in a particular context, they may be totally unsuitable for use with a different learner population or in a different environment. The process of learning-material adaptation involves facilitating the material’s effective use in a different context with different learners (COL 1999).

- Traditional learning material
- Pedagogical approach
- Technological approach
- Course topic and objectives
- Student characteristics
- Course content
- Open source system
- Course assessment and evaluation
- Teaching/learning activities and resources
- Distance learning material

### 1.5.5 Course Development Process at Allama Iqbal Open University (AIOU)

Course development process at AIOU comprises the following steps (Rashid, 2000):

- Need assessment of target population
- Preparation of Schemes of studies
- Keeping the course outlines at par with other formal courses
- Formulation of course teams
Meeting of committee of courses
Approval from faculty board
Getting approval from research & educational technology committee
Presentation of outlines in Academic Planning and Development Committee for approval
Final approval from Academic Council
Monitoring of Writers
Reviewing the material
Sending material to bureau of AP&CP
Coordination with the course editor, designer and illustrator
Forwarding material to print unit through AP&CP
Final proof reading of press copy
To O.K. for mailing after printing of material

1.5.6 Course development process in IGNOU

It is a fact that the success and effectiveness of distance education systems largely depends on the study materials. Thus, in developing self-learning study materials, the course writers have a crucial role to play. Writing for distance education is a more challenging task and quite different from that in face-to-face teaching or writing for a book or a journal. Self-learning materials depend on exploiting the various means and ways of communication to suit it to the needs of learners.

There are quite a few terms which are frequently used in distance education. As a course writer, should be familiar with all the important terms relevant to the process of writing self-learning materials. Some of these terms, were have been practicing at the Indira Gandhi National Open University (IGNOU).

a) Programme

By a programme, we mean the curriculum or combination of courses in a particular field of study. For example; Undergraduate programme, Diploma programme in Management, Post-graduate Diploma programme in Distance Education, M.A. programme in English etc.

b) Course

The programme is divided into courses. In conventional education, when we talk of a course, we usually refer to a subject and level, such as, post-graduate chemistry, primary level maths, under graduate biology and so on. In distance
education the term course includes more than this. It is used to describe the teaching materials and other components of the study. A typical distance education course would, for example, consist of a number of booklets of printed material, audio and video components, counselling/contact sessions, assignments, library work, laboratory work, project work, etc. Thus, each course consists of a few printed booklets called Blocks, a few audios; a few videos, some assignments and whatever else may go with it. Going back to the expression programme, the point to remember is that a PROGRAMME consists of a few COURSES. For example, an Undergraduate Programme may consist of a course in Physics, a course in Chemistry, a course in Mathematics and a course in a language. Programme is thus, a super ordinate term and Course a subordinate one.

\textit{c) Block} \\
A course is divided into ‘blocks’. The block appears in the form of a booklet of around 60/80 printed pages. Generally each block presents one unified theme. The printed course materials is sent to the learners in the form of blocks as a learner may feel a greater sense of achievement each time he/she completes a block. A single ‘big’ book can be threatening from the pedagogic point of view. Again the point to remember is that each COURSE consists of a few BLOCKS which appear as booklets.

\textit{d) Unit} \\
The term ‘unit’, of course, the context is that of IGNOU, is used to denote a division of a block, at one level in terms of the theme or topic and at another level as the material used to teach the topic. A unit is a self-contained portion of a block covering one or more interwoven learning concepts. Each unit is broken into sections and sub-sections for the clarity of the presentation of concepts, information, illustrations, etc. Each unit is, thus, an individual lesson and fits into the block it belongs to. It contains orientation for learners, introduction to the content, explanation of the topics covered and exercises to help them learn the material. All the units of a block are logically and also thematically linked with each other. At some institutions, units are called ‘lectures’, ‘lessons’, ‘topics’ or chapters’. But the word ‘unit’ is commonly used among distance educators today. The length of a unit is also an important feature to be taken into consideration. IGNOU courses have a unit of 5,000 to 6,000 words or 25 to 30 — typed (double space) pages (A4 size paper) approximately. This amounts to about 15-17 printed pages. This kind of thrust has been built on the basis of following three considerations:
e) Pedagogy

Keeping in view the skills, attention span and study habits of the learners, the content load should be appropriate and manageable. A unit is a pedagogical unit that can be completed by a learner within a reasonable period of time, say for example, 5-6 hours, i.e., at the most three sittings. Pedagogically, the best unit is the one that can be completed in one sitting. But then, there are constraints of thematic continuity, attention span, economy, bulk of print materials etc. Which force us to opt for a unit of a larger size, however, it should not be too large to defeat the very purpose for which it is prepared.

f) Uniformity

All the IGNOU’s units should display a reasonable degree of uniformity for other reasons. For example, unit writers have to be paid according to uniform scale, for which the unit size has to be standardized.

g) Printing

Open and Distance education institutions have to produce a standardized output i.e., to have a specified size and length of each unit/block, as the printer has to be paid for a particular size of a booklet. All the units, blocks and courses of a programme are interrelated. Their hierarchical relationship is presented with the help of the following scheme:

![Hierarchical Linkage Scheme](image)

*Figure 1.3: Hierarchical Linkage Scheme*
1.6 SELF-LEARNING MATERIALS

The course materials are presented in such a way that a learner can learn from the material independently as it carries out all the functions of a teacher such as guiding, motivating, expounding, explaining, provoking, reminding etc.

1.6.1 Characteristics of Self-learning materials

Self-learning Materials (Self Learning Materials) differ from a chapter of a textbook or an article of a journal. The chapters of a text book usually present information in a very compact form. They are closer to reference material than to learning materials. They are organized in terms of the subject matter rather than to aid learning. Similarly an article in a journal is a means of communicating with equals in the profession. On the other hand, Self-Learning Materials are the instrument for learning. The main characteristics of Self Learning Materials are discussed as follows:

a) Self-explanatory

The content should be presented in a style so that a learner can go through the material without much external support. The content should be self-explanatory and conceptually clear. For this, the content is analyzed logically before it is presented. This order maintains the continuity and the consistency of the content. Thus, the Self Learning Materials promote self-learning on the part of the learner.

b) Self-contained

Efforts should be made to make the material self- sufficient so that a learner does not hunt for the additional sources, or even a teacher. Not that distance learners should not seek external support, or meet a teacher, but many of them are not in a position to receive support due to their geographical, physical and psychological isolation. Considering this factor, to the possible extent material should be self-sufficient so that he/she would not be at a disadvantage to those learners who are having accessibility to additional sources and teachers. For this the scope of the content of the unit should be visualized in detail. While avoiding the non-essentials only the essential details need to be presented so that the unit can cover all information required by the learners and keep away all that is not necessary. Hence identification of adequate content is always a challenge to a distance teacher/course writer.
c) **Self-directed**

The study material should aim at providing necessary guidance, hints, and suggestions to the learners at each stage of learning. The self-directed material is presented in the form of easy explanations, sequential development, illustrations, learning activities, etc. The material performs the role of a teacher who can guide, instruct, moderate, and regulate the learning process in classroom situations. Thus, the course material should direct the entire process of learning. Some teachers in conventional classroom situations also do not feel and do the activities like guiding, instructing, moderating, and regulating the learning process. The reasons may be many such as time constraints, teacher style, lack of interest in these aspects, etc. However, in the context of distance learners, you as a course writer have to take care of these components and direct the learning process in the course material, so that learners can direct their learning process in the absence of a teacher.

**d) Self-motivating**

In distance education systems, the learners remain off the campus for most of their study-time. The study materials like a live-teacher should be highly encouraging for the learners. The materials should arouse curiosity, raise problems, relate knowledge to familiar situations, and make the entire learning meaningful for them. It is not easy to create these situations, without an extra effort from the course writer. The sense of reinforcement should be strengthened at every stage of learning and retention.

**e) Self-evaluating**

As the learners remain separated from the open and distance institutions and the teachers, the study materials should make provisions for feedback as well. To ensure optimum learning, the learners should know whether they are on the right track. Self-evaluation in the form of self-check questions, activities, exercises, etc., provides the learners with the much needed feedback about their progress, reinforces learning, and motivates them for learning. The course writer should develop a built-in evaluation system by giving an appropriate number of self-check exercises, activities, and ‘check your progress questions’. Course writers have to prepare “possible (or) model answers” to the questions, exercises, and activities placed in the unit/lesson so that learner can cross-check his/her own answers and assess their progress of learning. Such indication of progress in his/her learning further motivates to do better.
f) **Self-learning**

Self-learning materials are based on the principles of self-learning. So a unit, besides information, provides the learners study guide – directions, hints, references etc., to facilitate their independent learning. To make the content comprehensible, it is supported by simple explanations, examples, illustrations, activities and so on.

**g) Learning Activeness**

Simply reading the unit would not guarantee learning. The material has to be such that the learners can interact with it more and learn better. This characteristic of Self Learning Materials is known as learning activeness. A unit is said to be learner active if it has the potential to motivate the learners to sit up and be engaged in various types of academic activities such as jotting down points, explaining the concepts, collecting material, applying what has just been learnt to a new situation, doing self-check exercises, writing assignment- responses and similar exercises. Such built in strategies make a unit learner active and pedagogically purposive.

1.7 **SELF-LEARNING MATERIALS V/S CONVENTIONAL INSTRUCTIONAL MATERIALS**

The similarities and the dissimilarities between face-to-face and open distance teaching. In the conventional system of education, the students get most of their instruction through face-to-face interaction with a teacher and they attend classes regularly in peer groups. The students under this system use the already existing text materials (text books). No special materials are developed for these students. Self-learning, on the other hand, depends on the materials specially prepared or transformed for a target group. In self-study, the learners get very little opportunity to interact with the teachers and peer groups as in the classroom situations. This loss is compensated by a special kind of self-learning material which includes all the study materials developed to stimulate independent learning. Other major differences between self-learning and conventional instructional materials (textbooks) are given in the following table:
Table 1.8: Textbooks Vs Self-learning Materials

<table>
<thead>
<tr>
<th>Textbooks</th>
<th>Self-Learning Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assume interest</td>
<td>Arouse interest</td>
</tr>
<tr>
<td>Written mainly for teacher use</td>
<td>Written primarily for Learner use</td>
</tr>
<tr>
<td>Do not indicate study time</td>
<td>Give estimates of study time</td>
</tr>
<tr>
<td>Designed for a wider market</td>
<td>Designed for a particular learner group</td>
</tr>
<tr>
<td>Rarely state aims and objectives</td>
<td>Always give aims and objectives</td>
</tr>
<tr>
<td>Structured for teachers and specialists</td>
<td>Little or no self-assessment</td>
</tr>
<tr>
<td>Structured according to the need of learners</td>
<td>Major emphasis on self-assessment</td>
</tr>
</tbody>
</table>

1.8 MODELS FOR COURSE DEVELOPMENT

Course development would not always be an easy and smoothly running process. Writers may initially be reluctant to accept the need to develop materials in the distance education format, and writers, reviewers and editors may not be highly motivated. Due to the voluntary nature of contributions, however, these problems appear to be manageable. A high level of intrinsic motivation would also help to overcome the time problem in course development. Preparing the course proposal and developing the learning and teaching material would be time consuming. A realistic time frame for developing and delivering one course is 10 weeks.

A support structure for course developers would be established. One element would be a course-writing workshop to train writers for this specific function. The coordination center would also help with organizational and technical problems. After the first year a course has been taught, the feedback from students and course teachers would provide valuable input for course improvements and modifications. A quality control mechanism would also be established, reflecting an appropriate set of quality measures. These would include benchmark measures for

- institutional support (e.g., the reliability of course delivery and technology)
- course development (e.g., the periodic review of instructional material)
- teaching/learning (e.g., the constructive and timely feedback on student assignments and questions)
- course structure (e.g., a clearly written, straightforward course outline),
- student support (e.g., students’ access to technical assistance) and
- Other means of evaluation (e.g., enrollment numbers and costs are used to evaluate program effectiveness)

1.8.1 Fred Keller - The Personalized System of Instruction (PSI)

PSI is also known as the Keller plan. First described by Fred Keller in *Good Bye Teacher - Journal of Applied Behavior Analysis* (1968). It is composed of small self-paced modularized units of instructions where study guides direct learners through the modules. Unit tests are given on each module where the learners must show mastery by scoring at least a 90%. Student proctors are used to help with individual problems and lectures are given for motivational problems only. PSI combines *mastery learning* with principles of reinforcement learning theory. Mastery learning requires that the desired student performance be stated precisely using performance or learning objectives.

The modules can consist of reading assignments, films, audio tapes, field trips, programmed instruction, conducting an experiment, conducting an interview etc. The performance evaluations can be essays, multiple choice, oral exams, written report, etc. Although not required, bonus points are encouraged to be given to learners who complete the tests in a timely manner since procrastination in a self-paced course is the biggest problem.

Keller divided the process for creating PSI into four steps:
- Determine the material to be covered in the course
- Divide the material into self-contained modules (segments)
- Create methods of evaluating the degree to which the learner has conquered the material in a given module
- Allow learners to move from module to module at their own pace

1.8.2 Course Team Model

Depending on requirements, distance teaching institutions adopt a variety of course design and development models. The Course Team (CT) model, followed at the Open University (UK), Athabasca University (Canada) and Deakin University (Australia) and others and revised course team models followed by many others, is the most common of all. A host of specialized people comprise the course team: academics
(subject experts), radio and TV producers, educational technologists, editors, graphic designers, counselors, student representatives, and a course chairperson with varying levels of responsibilities. Because of the representation and active involvement of different categories of experts, the quality of materials thus produced is normally high. Lockwood (1992, 1993, 1994) has discussed four course production models, viz. personalized training, workshop generated, text transformation, and wrap around which are considerably different from the original (Course Team) CT model.

Besides course team model, a variety of course development approaches/models viz., contract author and editor model, educational adviser model, and workshop model are available to distance educators today. Some of the common ones are described briefly as follows.

**1.8.3 Personalized Training**

Lockwood (1994) notes that this model "is designed to equip authors with the skills and techniques they need to use when planning and producing self instructional materials at that moment in time when they need them". Many designers have found this approach suitable for producing self-instructional materials in a shorter time and with people having no previous experience in this area. Timely help in necessary skills and techniques provided by educational technologists generate good quality materials.

**1.8.4 Workshop Generated**

As an improvement over the (Course Team) CT model, in this case the experts in the workshop (such as subject matter experts, media experts, graphic experts, language editors, etc) belonging to different backgrounds, work together and generally take less time to produce materials. The Indira Gandhi National Open University (IGNOU) developed large portion of materials for the Certificate in Guidance programme and B.Sc. Physics laboratory courses through this model (Panda and Garg, 2003). This model places major emphasis on detailed prior planning before the conduct of the workshop and actual work within the workshop itself.

**1.8.5 Text Transformation**

In this approach, the authors and designers follow a process of transforming existing learning materials into self-instructional materials (SIMs). For instance, in India, the Distance Education Institutes of dual-mode universities transform the existing correspondence study materials SIMs with support received from the Distance Education Council (DEC) and Staff Training and Research Institute (STRIDE) of
IGNOU. The process involves organization of workshops for the transformer-authors as also extension of follow-up support from instructional designers to quicken the process of transformation.

1.8.6 Wrap around Text

Since high quality SIM development is time consuming and costly, in this case, the existing printed texts of Distance Training Institute (DTIs) are used along with wrap around texts. The cost of developing course material through this model is as such low but the copyright implication is a major issue to be resolved. Many DTIs are pursuing the path non-availability of good and simple textbooks is a hurdle to quality learning.

1.8.7 Educational Advisor Model

This model is followed at the Murdoch University and the Darling down Institute of Advanced Education, Australia. The educational advisors are generally senior subject experts with experience in educational technology. They advise and work in collaboration with the faculty within their disciplines/subject areas to develop quality learning materials.

1.8.8 Contract Author-Faculty Model

In this model, authors from outside the institution write units and the materials thus produced are vetted by the internal faculty. In IGNOU, this is the usual practice, though the course is designed by a team of experts, and the editors take exclusive responsibility of content editing and content quality. This model, with slight variation, is also known as 'Author-Faculty-Editor Model' or 'Coordinator-Writer-Editor Model'.

1.8.9 Contract Author-Editor Model

In this model, the materials, developed by the outside experts, are vetted and edited by either internal or external editors, who work on the materials as surrogate students. In this case, caution is required to get quality materials written by external authors.

1.8.10 Seminar Generated

This model of course development is useful when published literature in the subject is limited, and the subject is in the nascent stage of development. Naturally due to this shortage, there shall be very few experts in the field. In this context, ‘seminar’ turns to be a better approach to generate new ideas and thoughts, thoroughly discussed by peer groups. The papers presented in the seminar and the proceedings of the seminar become the basic material, and study guides and activities are developed and added by
internal faculty on the basis of the outcome of the seminar. Such an approach leads to faster development of course material.

1.9 INSTRUCTIONAL DESIGN MODELS

There are many instructional design models but many are based on the ADDIE model (Douglas, 2003):

1.9.1 ADDIE model

Perhaps the most common model used for creating instructional materials is the ADDIE Model. This acronym stands for the 5 phases contained in the model:

- **Analyze**: analyze learner characteristics, task to be learned, etc.
- **Design**: develop learning objectives, choose an instructional approach
- **Develop**: create instructional or training materials
- **Implement**: deliver or distribute the instructional materials
- **Evaluate**: make sure the materials achieved the desired goals

In the ADDIE model, each step has an outcome that feeds into the subsequent step.

Analysis > Design > Development > implementation > Evaluation

1.9.2 Instructional Development Learning System (IDLS)

Another model of instructional design is called Instructional Development Learning System (IDLS). Peter J. originally published this model in 1970 IDLS model consists of the following components:

- Design a Task Analysis
- Develop Criterion Tests and Performance Measures
- Develop Interactive Instructional Materials
- Validate the Interactive Instructional Materials
1.9.3 Rapid prototyping

A sometimes utilized adaptation to the ADDIE model is in a practice known as rapid prototyping. However, rapid prototyping is considered a somewhat simplistic type of model. At the heart of instructional design is the analysis phase. After thoroughly conducting the analysis; choose a model based on findings. That is the area where most people get snagged; they simply do not do a thorough enough analysis. Proponents suggest that through an iterative process the verification of the design documents saves time and money by catching problems while they are still easy to fix. This approach is not novel to the design of instruction, but appears in many design-related domains including software design, architecture, transportation planning, product development, message design, user experience design etc.

1.9.4 Dick and Carey system approach model

Another well-known instructional design model is The Dick and Carey Systems Approach Model. The model was originally published in 1978 by Walter Dick and Lou Carey. Dick and Carey made a significant contribution to the instructional design field by championing a systems view of instruction as opposed to viewing instruction as a sum of isolated parts. The model addresses instruction as an entire system, focusing on the interrelationship between context, content, learning and instruction. According to Dick and Carey, "Components such as the instructor, learners, materials, instructional activities, delivery system, and learning and performance environments interact with each other and work together to bring about the desired student learning outcomes". The components of the Systems Approach Model, also known as the Dick and Carey Model, are as follows.

- Identify Instructional Goal(s)
- Conduct Instructional Analysis
- Analyze Learners and Contexts
- Write Performance Objectives
- Develop Assessment Instruments
- Develop Instructional Strategy
- Develop and Select Instructional Materials
- Design and Conduct Formative Evaluation of Instruction
- Revise Instruction
- Design and Conduct Summative Evaluation
1.9.5 OAR Model

Objectives-Activities-Resources (OAR) model is an instructional design model created for a specific context: distance education courses delivered through a Learning Management System (LMS) in higher education. It was developed in 2008 at Utah State University at the Faculty Assistance Center for Teaching by George Joeckel, Joel Gardner and Tae Jeon. The OAR model was developed to meet four criteria:

- Maintain a strict focus on the learning system context.
- Create a simple graphic-based aid which facilitates communication among development stakeholders.
- Remain inclusive by avoiding the use of jargon.
- Represent the basic order of operations in the development process for an online course.

1.10 RATIONALE OF THE STUDY

The investigator worked as academic consultant in the department of education of Dr. BRAOU and during his tenure he had observed the existing curriculum of the first Open University in India. Foundation course in mathematics was not included in the existing curriculum at first year under graduate programme of university. May be because of this, students are not getting chance to pursue management and computer science degrees after their graduation. This is the reason for the present study was undertaken. The significance of the present study, the procedure for the development of the course material and its effectiveness was briefly discussed in the present section.

The Dr. B. R. Ambedkar Open University has adopted a dual approach for admission into undergraduate programme. Firstly, the formal stream for those who have formal entry qualification (i.e., Intermediate or its equivalent) are eligible to join and secondly, the non-formal stream for those who do not have such qualifications but would have to pass the entrance test, called “ELIGIBILITY TEST (ET)” conducted by the university, to be eligible to join into undergraduate programme.

The Programme Structure of the University is unconventional, flexible and free from rigidities of the traditional kind. The first year programme consists of four Foundations Courses which are common and compulsory for all the students admitted to the Undergraduate Programmes of B.A., B.Com, and B.Sc. They are:
1. The Foundation Course in English Language
2. The Foundation Course in Modern Indian Language (Telugu/Urdu/Hindi) or Functional English
3. The Foundation Course in Science & Technology
4. The Foundation Course in Social Sciences

The Foundation Courses in English and Modern Indian Languages (Telugu/Urdu/Hindi) help the candidates to develop communication skills while the Foundation Course in Science & Technology and Social Sciences help the students understand the basic concepts in science and society. But the Foundation Course in Mathematics, which puts those graduated from an Open University, through non-formal stream (without schooling or with lower level educational qualification below SSC), on par with those graduated from a Conventional University, as far as the minimum level of mathematical knowledge and skills is concerned,

- is essential in daily life activities
- is essential in any career
- is mandatory to pursue Academic Programmes in computers and management after graduation was not included in the first year

Any student at the time of admission into any undergraduate programme in any conventional university possesses certain mathematical knowledge and skills learnt up to SSC level at least. Besides these graduates, the remaining graduates, with or without mathematics as one of the optional subjects at undergraduate level, must have studied mathematics at least up to +2 level. So, it is expected by the public in general and employers in particular the minimum mathematical abilities (of SSC level) from the graduates.

At the Undergraduate level, in II year, the student has to choose three optional subjects out of 20 subjects offered under the Four Faculties. Though the flexibility is given to the student in the choice of elective subjects, he/she must choose at least two optional subjects from the Faculty in which he/she wants to acquire the degree.

At present there are 1, 50,000 active students and are enrolled in different programmes offered by Dr.B.R.Ambedkar Open University. Of them 60% of the students have been enrolled in different programmes leading to B.A / B.Com/ B.Sc programmes (APSCHE, 2006. p.73). It reveals that there is urgent need to frame suitable curriculum for those enrolled in their undergraduate programmes through ET to get an opportunity not only to pursue M.B.A or M.C.A courses etc., and also to develop
mathematical skills and mathematics usage in daily life after their undergraduate programmes. Every year the students of BRAOU losing in getting admissions into M.C.A and M.B.A courses due to the norms of APSCHE.

The Andhra Pradesh State Council of Higher Education (APSCHE) conducts ICET (Integrated Common Entrance Test) for admission into M.C.A and M.B.A courses (Full-Time/Part-Time/Evening/Distance Mode) at all universities in the state of Andhra Pradesh including their affiliated colleges for every year. The Candidate seeking admission into M.B.A course should have passed a Bachelor’s Degree examination of not less than three years duration from any recognized university or equivalent thereof besides passing S.S.C or equivalent examination with mathematics as one of the subjects and the Candidate seeking admission into M.C.A course should have passed a Bachelor’s Degree examination of not less than three years duration in any discipline with mathematics at 10+2 level or should have passed a Bachelor’s Degree examination of not less than three years duration in any discipline with mathematics as one of the subjects and the Candidate seeking admission into M.B.A course should have passed a Bachelor’s Degree examination of not less than three years duration in any discipline with mathematics as one of the subjects besides other eligibility criteria such as local/Non local, Nationality, qualifying marks etc.(ICET, 2008, Appendix-AF). Therefore, it reflects that the non-formal stream students those who took admission through ET (Eligibility Test) and completed their undergraduate programme from Dr.B.R.Ambedkar Open University are not eligible to take admission into M.B.A. or M.C.A. Courses. To meet the deficiency of Foundation Course in Mathematics at Undergraduate level the present study to develop a Foundation Course in Mathematics was undertaken.

After reviewing the course design models in open Distance Education at national and international scenario, the investigator followed the course development procedure of IGNOU and Dr. BRAOU, because the present course was developed for the first year students of Dr.BRAOU, in the present study the course material is similar to the Instructional Development Learning System (IDLS) and the personalized training model. The course content is presented in linear and semi programmed text style. The investigator had worked in the Dr.B.R.Ambedkar Open University and acted as course coordinator and having experience in writing course material for distance learners. In developing and validation of the present course material, the investigator also kept in mind the other models, characteristics, components, suggestions which have been practicing in the various Open Distance institutions.
1.11 Conclusion

The significance of the study to develop the course material for foundation course in mathematics for distance learners has been discussed in this chapter. After presenting the increasing demand leading to the need for other ways of providing education for the cause of democratization of higher education, Open University system was found as a novel system of education and dynamic distance education mode as it is feasible with advancement of science and technology. Taking the case of Dr. B.R. Ambedkar Open University, various aspects of Open University system are discussed. Further, the researcher discussed the importance given for the quality and credibility of academic programmes and process of course design, self-learning materials, models for course development, instructional design models followed in Open University system. Inspite of the quality and credibility of academic programmes, the researcher, in the rationale of the study, identified the problem of absence of the foundation course in mathematics and presented the significance of not only the inclusion of the foundation course in mathematics at undergraduate level but also the process and effectiveness of development of self-instructional material for foundation course in mathematics for distance learners of open university. With reference to the present study, the related studies are reviewed and presented in the succeeding chapter i.e. the review of the literature.