

CHAPTER V

CURRICULAR MATERIALS USED IN THE NON-FORMAL EDUCATION CENTRES

Curricular materials mostly are the source of knowledge for the instructors to carry on the instructional process at the NFE centres. Since most of the instructors had only the minimum qualification of S.S.L.C. (Matric) they mainly depended upon the curricular materials prescribed by the D.S.E.R.T., Bangalore. Very few of them used supplementary materials in addition to the books prescribed.

An attempt has been made in this chapter to find out the opinions of the instructor and supervisors about the suitability and adequacy of the prescribed curricular material. An attempt has also been made to present a review of the curricular materials followed in the NFE centres.

5.1 Suitability of the Curriculum followed in the Non-formal Education Centres :

The curricular expectations as envisaged by the DSERT, Bangalore for the Part-time and Continuing Education Schemes are as below:

(a) Part-time Education

Children under this scheme are illiterate because they had never any opportunity to go to schools. For such children,

curriculum should include knowledge of the alphabet, simple arithmetic such as counting and fundamental operations, science essential for their life, health and hygiene, knowledge of communicable diseases ways of prevention and cure of such diseases and such other topics. Curriculum for these children should also include general knowledge about the formation of government, role of citizens in a democratic set up, their rights and responsibilities. Occupational skills have also to be imparted so that the lives of children could become productive.

(b) Continuing Education

This type of education caters to those children who went to school for sometime but subsequently left the school due to various reasons. There is a provision for such children to join the regular primary schools after they complete the course of Non-formal Education. For such children, knowledge of the content taught in the formal schools should be imparted by way of condensed materials. For example, suppose there is a child who studied upto standard IV and left subsequently. For such a child, suppose there is a provision for joining Standard VI according to his age. NFE programme can help such a child to join the regular system (Formal Education) by teaching him lessons of standard V and VI in a condensed manner.

In the light of the above curricular expectations, we shall now examine the views expressed by the instructors of the NFE centres, supervisors of the NFE centres and also learners at the above centres.

5.1.1 Views of Instructors

The opinions of the instructors are presented in Table 5.1. Out of the 49 instructors, 35 (71.4 per cent) stated that the courses of study are not modified from time to time whereas only 14 (28.6 per cent) said that the courses are being subject to modification. 30 (61.2 per cent) teachers expressed that the curriculum is adequate in relation to needs and interests of pupils. As many as 43 (87.7 per cent) of the instructors felt that the curriculum is flexible and only 6 (12.3 per cent) reported in the negative. This shows that the majority of the instructors had an open mind to incorporate new ideas and methods in curriculum development and improvement.

Table 5.1 : Information obtained from Instructors about Curriculum

	Number	Percentage
1. Modification of courses of study:		
(a) Modified	14	28.6
(b) Not modified	35	71.4
2. Adequacy of the curriculum in relation to needs and interests of pupils :		
(a) Adequate	30	61.2
(b) Not adequate	19	38.8
3. Flexibility of curriculum :		
(a) Curriculum flexible	43	87.7
(b) Curriculum not flexible	6	12.3
4. Possibility of incorporating new ideas and methods :		
(a) Possible	43	87.7
(b) Not possible	6	12.3

5.1.2 Views of Supervisors

Of the 14 supervisors contacted, 11 (78.6 per cent) expressed the view that the syllabus prescribed for learners is suitable in terms of the objectives of the non-formal education programme and only 3 (21.4 per cent) said it was not suitable, as it is revealed from Table 5.2. The same table also shows that majority of the supervisors (78.6 per cent) felt that the syllabus is suitable for the age range of the pupils, their social background and physical environment.

Table 5.2 : Suitability of the Syllabus as perceived by Supervisors

	Number	Percentage
1. Suitability of the syllabus in terms of the objectives :		
i) suitable	11	78.6
ii) Not suitable	3	21.4
2. Suitability of syllabus for the age-group of the pupils :		
i) suitable	11	78.6
ii) Not suitable	3	21.4
3. Suitability of the syllabus with respect to the social background of the pupils :		
i) Suitable	11	78.6
ii) Not suitable	3	21.4
4. Suitability of the syllabus with respect to the physical environment of the pupils :		
i) Suitable	11	78.6
ii) Not suitable	3	21.4

Attempt was also made to know the reactions of the supervisors as to the reasons for not finding the syllabus suitable. All the supervisors who considered the syllabus to be unsuitable pointed out that the syllabus is not helpful in the present occupation of the pupils, learners are over-aged, rural problems are not reflected in the syllabus and science lessons are not based on rural environment.

The investigator had a discussion with the Deputy Director of Public Instruction, Hassan who is in overall charge of the entire non-formal education programme in Hassan District. The D.D.P.I. gave a few reactions based on his field visit to the NFE centres. He held the view that components of functional literacy and numeracy are very important to make the syllabus meaningful and purposeful. He pointed out that suitable steps would be taken in this direction. He also stated that he had instructed all his supervisory personnel (Inspectors of Schools and Asst. Educational Officers) and other field functionaries to incorporate these significant elements in the non-formal education programme.

5.3 Review of Instructional Materials

For organizing the teaching-learning process at the NFE centres, the Directorate of Education had brought out four books each for the Part-time Education Scheme and the Continuing Education Scheme. Although, the instructor had the freedom to utilise other curriculum material also in addition to

these prescribed books, it was found that these books happened to be the sole source of instructional material for the instructor as well as the learners. Thus, the role of these books becomes crucial and there is need for ensuring that they are well designed.

The list of books prescribed for the Part-time and Continuing Education Schemes are mentioned below:

Part-time Education

1. Balina Belaku (Language)
2. Science (General Science)
3. Navy Mathu Namma Parisara (We and our environment)
4. Arithmetic

Continuing Education

1. Kannada Bhasha Praveshini (Language)
2. Arithmetic
3. Science (Physics, Chemistry and Biology Separately)
4. Social studies.

The investigator made a brief review of each of the above books keeping in view the objectives of non-formal and education/also the curricular expectations of the two schemes namely Part-time Education and Continuing Education.

5.2.1 Part-time Education :

(1) Balina Belaku (Language)

There are 23 lessons in this book. Students are taught certain aspects of modern agriculture, animal husbandry, cottage industry, and co-operatives. There are also lessons

on post office, banks and small savings schemes. A few aspects of hygiene are also touched upon namely drinking water, Contagious diseases, and cleanliness of the body. Some aspects pertaining to the occupational skills namely poultry, cattle-rearing, and bee-keeping, are also dealt with. There are lessons about Mahatma Gandhi, Our India, Karnataka which bring out the importance of national integration. There is a lesson towards the end on letter writing.

From the foregoing analysis, we can infer that the lessons given in this book are not only rich but varied also. They help children to develop functional literacy, as well as social, political and health awareness. Functional knowledge relating to agriculture, animal husbandry, co-operatives etc. is also given importance. There are topics relating to occupational skills such as weaving, carpentry, poultry, bee-keeping etc. Topics related to rural life enable the children to have an idea of their immediate environment.

(2) General Science :

There are 11 chapters in this book. Aspects of science pertaining to fuel, gobar gas and tractor are dealt with in the first three chapters. Matters relating to transport and communication are included in the fourth and fifth chapters. Some knowledge about space and sputnik is given to the learners through the sixth chapter. The last five chapters deal with items like health, drinking water, cleanliness of house, balanced diet and personal hygiene.

Stress seems to be in all these lessons on the importance of science in every day life. Language of the lessons is simple and clear so that children in rural areas can easily understand the scientific phenomena. Some of the examples and illustrations are from their environment only. This makes the children feel at home with the new knowledge that they have to learn. The focus in almost all lessons seems to be on functional knowledge and as such, learners would definitely evince interest to know more and more about the utility of science in everyday life.

(3) We and Our Environment :

There are 14 lessons in this book. They are (1) Our environment, (2) We are kannadigas, (3) Rural kingdom, (4) Co-operation, (5) Cottage industries, (6) Planning for poor people, (7) Why prices rise, (8) Co-operative farming, (9) Nutritious Diet, (10) Manures, (11) Accidents, (12) Planting trees, (13) Youths and their responsibilities, (14) National festivals.

An analysis of the above lessons shows that there is considerable emphasis in this book on development in (1) Social awareness, (2) Political awareness and (3) Health awareness. Attempt is also made to impart functional knowledge to the learners relating to (i) agriculture, (ii) Animal husbandry, (iii) Forestry, (iv) Co-operatives and several development programmes related to them. Civic education is also attempted through a few lessons. Children are taught that

both rights and responsibilities should go together. They are given to understand that the nation depends upon the leadership that the youths can provide. There is considerable stress on national integration also. The last lesson in this book deals with various national festivals such as Daserrah, Divali etc. and the importance of these festivals in the national content is brought home.

(4) Arithmetic :

The framers of the curriculum have given importance only to the first four fundamental operations and as such, simple sums dealing with the four fundamental operations have been included in Arithmetic. Addition and subtraction of two and three rows only are taught to the learners. In the case of multiplication and division also, only one digit number is taken as the multiplier and the divisor. Some verbal problems are included in every chapter bringing a situational factor into the process of Arithmetic.

A close look at the various chapters gives a clear indication that the aspect of numeracy is well taken care of. Another significant feature is that drill work has not been made monotonous as meaningful drill work has been designed so that learners do not get bored. The processes of Arithmetic have been dealt within a sequential way. For example, pupils are given a clear understanding of the fact that repeated addition is multiplication and similarly successive subtraction is division. The language used is simple so that pupils do not

get confused. A few aspects of the local environment have also been brought in so that the situations are related to the environment in which the learners live. Stress is laid on oral problems also so that the learners get used to mental calculations. Practice of multiplication tables is given lot of importance in all chapters. Speed and accuracy have been well correlated in presenting the various processes of Arithmetic.

5.2.2 Continuing Education

(1) Kannada Bhasha Praveshini (Kannada Textbook)

There are four sections in this book, Section-I deals with the previous knowledge of the learners in Kannada language. Section-II deals with portions which are on par with the content area meant for standard V. Section-III contains portions which have parity with the content of the text book of Standard VI. Similarly the last section namely Section-IV has those content items which are almost parallel to those found in the textbook of Standard VII of the formal stream.

Since this book is meant for those students who have a provision to join the regular primary school, care has been taken to see that the prescribed contents of Standards V, VI and VII are covered sequentially. For example, if a particular learner complete the portions of standard VI at the

end of the NFE programme, he or she can join the Standard VII in the formal system.

There are a few lessons which deal with the salient features of Karnataka state such as places of pilgrimage, places where art and sculpture are prominent and types of birds in Karnataka. There are some lessons pertaining to a few leading poets of Karnataka State such as Kumara Vyasa and B.M. Srikantiah. Some lessons have a bearing on the folk songs of Karnataka.

A few lessons bring out the remarkable achievements of famous scientists in the world such as Meghanath Saha, Hargovinda Khorana and Louis Pasteur. A few lessons have a bearing on current topics like population explosion and population education.

In each section, both prose and poetry find place and under the poetry section, poems of noted Kannada poets such as Ku. Ven. Pu., Da. Ra. Dendre, D. V. G., and C. P. Krishna Kumar are included. Poems of a few ancient poets such as Basavanna, Sarvagnya and Puranadaradasa have also been added in the poetry section. A few lessons pertaining to inculcation of morals, narration of mythological stories have also been included in this text.

One significant feature of this language text book is that both language and literature have been given importance.

For example, there is a lesson on Kannada language and literature apart from the other aspects of Kannada literature which have already been discussed in the foregoing paragraphs.

(2) Arithmetic

The main topics for Standard IV are (1) Numbers, (2) Fundamental processes, (3) Divisibility, (4) Factorisation, (5) Approximation, (6) Fractions, (7) Decimals, (8) Metric Units of Length, (9) Unit of time, (10) Mensuration, (11) Measurement of volumes, (12) Measurement of Weight, (13) Lines.

The main topics for Standard V are (1) Roman numerals, (2) Sets, (3) Fractions, (4) Multiplication, (5) Division, (6) Ratio and Proportion, (7) Point and lines, (8) Mensuration, (9) Simple Interest.

The topics of Standard VI are: (1) Fractions, (2) Decimals, (3) Percentages, (4) Approximations, (5) Sets, (6) Elementary Algebra, (7) Geometry - upto triangles.

An analysis of the content prescribed for the three classes shows that a spiral approach has been followed in imparting the content for ^{the} three classes namely Standards V, VI and VII. Relationship between fractions and decimals has been brought out well through illustrative examples. Associative law and commutative law have been well illustrated through proper examples. Fundamental concepts about simple

interest have been explained in a lucid way.

The number line has been explained with good examples. Addition and subtraction of signed numbers using number lines has been well presented. The operation of directed numbers in the case of multiplication and division of the same has also been explained well.

The relationship between fraction, decimal and percentage is given through master matching tests. Use of percentage in the daily life of students is illustrated through good examples. The exercise for drill has good gradation and there is variety in the various problems given.

Elementary knowledge about sets has been given to the students. Students are given the idea of an infinite set, nullset, universal set, and a sub set through good examples. Concepts of union and intersection of sets have also been imparted in a clear way through simple and understandable examples.

Care has been taken to see that Algebra is understood as generalised arithmetic. Simple concepts about the first four fundamental processes have been well illustrated through examples. Laws of Indices have also been well explained and the same are drilled through good exercises.

(3) Science**(1) Physics**

The main topics specified for Standard V are:

- (1) Matter and its various forms, (2) Metric units of length,
- (3) Unit of Time, (4) Measurement of Liquids, (5) Pressure and Thrust (Archimedes principle), (6) Atmospheric Pressure,
- (7) Simple Machines.

The topics for Standard VI are :

- (1) Heat, (2) Effect of heat on matter, (3) Transmission of Heat, (4) Thermos Flask, (5) How sound is produced,
- (6) Transmission of sound, (7) Echoing, (8) Various Musical Instruments.

The topics for Standard VII are:

- (1) Light, (2) Shadows and Eclipses (3) Reflection of light,
- (4) Refraction of light, (5) Colours, (6) Magnets.
- (7) Electricity, (8) Atomic energy.

An analysis of the above topics shows that stress is laid more on the basic concepts of physics such as (i) Atom is made up of three fundamental particles — electrons, protons and neutrons, (ii) The volume of an object is equal to the volume of the liquid it displaces when immersed in it. (iv) Atmospheric pressure decreases as we go at higher attitudes, (iv) Echoing is used to estimate distances, (v) A coloured object absorbs all other colours but reflects its own colour, (vi) A Switch is used to make or break a circuit

(vii) Nuclear fission takes place when two light nuclei are bombarded to give a heavier nucleus.

Experiments have been explained in a simple language to bring out the basic concepts. Wherever possible, use of science for every day life has been emphasised. At the end of each chapter, some questions have been asked to help students to drill themselves in the basic concepts. A few such examples are: (1) Ships made of Steel float on water. Why? (2) A pencil immersed in water appears to be half bent. Why? (3) One form of energy can be converted into the other. How? Give two examples from your daily life.

There is a sequence in the chapters prescribed for the various classes. There is a follow up of the concepts taught in the previous class whenever topics for the next class have been prescribed. The inquiry approach adopted throughout helps the pupils to draw suitable inferences keeping the situations in daily life in view.

(ii) Chemistry

Chemistry topics are prescribed for VI and VII classes.

The topics prescribed for VI class are (i) Oxygen,

(ii) Hydrogen, (iii) Chemical reactions, (iv) Factors facilitating chemical reactions, (v) Catalytic agents.

The topics suggested in the book for VII class are,

(i) Oxides, (ii) Acids, Bases and Salts, (iii) Carbon, (iv) Carbon Di-oxide, (v) Salts containing carbon, (vi) Sulphur, (vii) Metals.

The text book writer has attempted to convey to the pupils the following basic concepts:

- (i) Elements are substances whose molecule consists of some kind of atoms.
- (ii) Compound is a substance whose molecule consists of different kinds of atoms.
- (iii) Symbols are the short form of representing an atom and formula is the short form of representing a molecule.
- (iv) Oxygen constitutes $\frac{1}{5}$ of air by volume.
- (v) Oxides are formed when elements combine with oxygen.
- (vi) Hydrogen is used in filling balloons owing to its lightness.
- (vii) Hydrogen is a non-supporter of combustion but a combustible gas.
- (viii) A chemical change is a permanent change in which a new substance having altogether different properties is formed.
- (ix) In a combination reaction, we get a single product from two or more substances.
- (x) In a decomposition reaction, we get two or more substances from a single substance.
- (xi) In a substitution/displacement reaction, an element combines with a compound to form a new element and a new compound.
- (xii) The rate of a reaction can be influenced by factors like temperature, pressure, catalyst etc.

- (xiii) Oxides are of different types.
- (xiv) Acids are substances which turn blue litmus into red.
- (xv) Bases are substances which turn red litmus into blue.
- (xvi) Acids react with bases giving salt and water.
- (xvii) Carbon exhibits allotropy.
- (xviii) Carbon dioxide is used to extinguish fire
- (xix) Sulphur exhibits allotropy.
- (xx) A Saturated Solution Contains exactly the same amount of solute which the solvent can hold at that temperature.
- (xxi) When a hot Saturated Solution is cooled, crystals are formed.
- (xxii) Hard water can be softened by many methods.
- (xxiii) Metals are usually found in the combined form.
- (xxiv) Iron can be obtained by the reduction of its oxide ore.
- (xxv) Steel is made by mixing carbon in molten iron.

At the end of each chapter, a few questions have been asked to drill the pupils in the basic concepts. A few such examples are, (1) What are the uses of Oxygen? , (2) Write a diagram showing the different zones of the flame of a candle, (3) What are the allotropic forms of sulphur? (4) What are the uses of the aluminium metal?

Experiments have been explained in a simple way in order to make the basic concepts clear. Wherever possible, situations from daily life have been brought in so that the subject gets a practical touch.

(iii) Biology :

The topics in the syllabus prescribed for Standard V can be categorised under three heads: (i) Living organisms, (ii) Parts of plant, (iii) Diseases and their protection. Major concepts contemplated to be taught under living things are: (1) A living organism shows the characteristics of 'life'. (It has a cellular organisation, it metabolizes, grows and self perpetuates through a process of reproduction), (2) Plants and animals are living things, at the same time, they show certain differences. (3) Plants and animals are independent and they together maintain the balance in nature. Under parts of a plant, concepts about root, stem, leaf, flower, types of root system and functions of root system are taught. Simple experiments about osmosis, modification of underground stem, differences between monocot leaf and dicot leaf, pollination and fertilisation and dispersal of fruits are shown. In the chapter pertaining to diseases and their prevention, attempt is made to explain the meaning of infectious diseases like malaria, cholera and elephantiasis. Learners are given an understanding of the preventive measures to be taken so that these diseases do not spread. There is also a lesson about balanced diet emphasising the need and importance of balanced diet in maintaining good health. Topics in Standard VII include animal life and organic evolution. The text book writer has emphasised the following concepts:

1. There is a biological relationship among all organisms.
2. Organisms classified in a group have similarity in structure and function.

3. Closely related organisms have a common ancestry.
4. Organisms best fitted to survive in the environment give rise to other organisms.
5. Organisms have evolved from each other.
6. Like other organisms, man has evolved biologically and socially. In turn, man has modified the early environment.
7. D.N.A. is basic to the inheritance of organisms.
8. Organisms are composed of cells.
9. The chemistry of certain cells is similar in a variety of organisms. Thus hormones (insulin) of certain animals can be interchanged, enzymes of one organism may act in another.
10. The anatomy (for instance skeleton) of related groups also shows similarity in structure and function, suggesting common genes and hence a common ancestor.

In the chapter, cycles in nature, concepts like importance of carbon, nitrogen, phosphorus in the growth of an organism and how they are recycled in nature have been highlighted.

An analysis of the concepts included under various chapters in Biology shows that an attempt has been made to tell pupils about the nature of science. The textbook writer probably has two objectives in view:

1. to help pupils to understand the meaning of basic concepts in Biology.
2. to help pupils to understand and acquire the processes of science.

Subject matter has been presented in a simple language and there is gradation from standard to standard. For example, in Standard V, pupils learn about the parts of a typical plant and in Standard VI, they learn about the various parts of a plant and their functions. The evaluation exercises help the pupils to drill themselves in the basic concepts. Stress is also laid on activities like collection of plants, seeds etc. Various experiments have been explained in a clear and lucid way in order to promote a functional understanding of scientific principles. Attempt has also been made to develop in pupils a sense of appreciation of the contribution of scientists.

(4) Social Studies

This book contains three sections namely (i) History (ii) Civics and (iii) Geography.

The beginning portions in History deal with details pertaining to the arrival of Europeans in India. Pupils are given a historical picture of the clash between the British and French as well as the development of British kingdom in India. The impact of British administration on the Indian Society and the consequent social and religious developments during 18th and 19th century have been highlighted. Attempts

has been made to explain the contributions of the great sons of India such as Rajaram Mohan Roy, Dayanand Saraswathi, Gen. Ranade and Swami Vivekananda. Pupils are then exposed to the two wars of independence and the developments after Sipoy Mutiny of 1857. Formation of Congress and the role of Gandhiji in the freedom movement have been highlighted. There is a chapter on the five-year plans which helps the pupils to know the importance and achievements of the various five-year plans. Pupils are also given an understanding of the social and economic problems of India. There is a discussion on the reasons for the problems and also relevant and pertinent solutions for these problems. The last chapter in History deals with national integration. Pupils are given an understanding of the importance of national integration and the different ways of achieving this goal.

The topics in civics help the pupils to know the rights and responsibilities of citizens. Pupils learn here about the duties of president, Vice-president and the mode of functioning of the parliament. They also study the national flag, national anthem and the national emblem and their significance. The lesson on UNO helps them to know the role of the UNO and its achievement.

In Geography, pupils learn about the uses of rivers, causes of earth quake and characteristics of certain types of climate. Pupils are taught various aspects of the countries of Asia namely Japan, Iran, Philippines and Indonesia.

A knowledge of the location, relief features, climate and vegetation of these countries of Europe help children to have a broader understanding of the different aspects and to have a comparative picture of the situations in various countries.

In the social studies textbook, a summary of the salient features of the content in each chapter has been given towards the end. This helps the learners to remember the main points of each chapter in the book. At the end of each chapter some review questions have been given in order to help pupils to drill themselves in crucial aspects of information and knowledge. The maps in the Geography part are neat and clear and the skill of map drawing has been well emphasized.

5.3 Overall Observations ✓

- (1) Most of the instructors reported that the curriculum prescribed for the NFE programme is flexible.
- (2) Most of the instructors opined that the courses of study were modified from time to time. They reported that new dimensions were inducted into the courses of study periodically.
- (3) Most of the instructors indicated that the courses of study are suitable for the age-group of pupils and it was socially relevant.

- (4) Some of the supervisors pointed out that the prescribed syllabus is not helpful in the present occupations of the learners, rural problems are not reflected and science lessons are not based on rural environment.
- (5) A review of the curricular material indicates that there is correlation between the various branches of Mathematics namely Arithmetic, Algebra and Geometry. Examples have been suitably chosen to correlate these three branches, wherever possible.
- (6) It was found that integration in science among the various branches was inadequate. It is desirable to make an attempt to help the learners to acquire problem solving and decision making skills and to discover the relationship of science with health, agriculture, industry and other aspects of daily life.
- (7) At the elementary stage, it is desirable to correlate various branches of science and to put them under one head, namely, environmental study. The textbook writer could keep this point in view.
- (8) In the case of social studies, it is desirable to include a few more aspects of current trends both in History and Civics.