



State Council of Educational
Research and Training (SCERT)
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Kerala Curriculum Framework 2007



KERALA CURRICULUM FRAMEWORK - 2007



Prepared by:
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KERALA

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Contents

Preface	05 - 09
1. Kerala's Educational Scenario: An overview	10 - 14
1.1 Introduction	
1.2 Pre-independence period	
1.3 Post-independence period	
1.4 Quality education	
1.5 Awareness	
2. Towards the New Approach	15 - 22
2.1 Introduction	
2.2 National Curriculum Framework-2005 and Kerala	
2.3 The vision on the future society	
2.4 The aims of education	
2.5 Education and social justice	
3. The Perspective on Learning	23 - 29
3.1 What is to be learned?	
3.2 The learning process	
3.3 Execution of the learning process	
3.4 The right to education	
4. The Stages of Education	30 - 37
4.1 Pre-school education	
4.2 Primary education	
4.3 Secondary level	
4.4 Higher Secondary level	
5. Approach to Subjects	38- 73
5.1 Language learning	
5.2 Learning science	
5.3 Social sciences	
5.4 Mathematics	
5.5 Vocational education	
5.6 Art education and Health and physical education	
5.7 IT- assisted education	
5.8 Evaluation	
6. Systemic Reforms	74 - 84
6.1 Stages of education	
6.2 Administrative reforms	
Appendix	85 - 86

The curriculum revision programme in Kerala is launched as part of an endeavour to strengthen the Primary, Secondary and Higher Secondary school education in Kerala. We have already won laurels in matters like rate of literacy and enrolment of students in school. In order to advance further in this direction, we should ensure quality education to all children without any form of discrimination. Such an endeavour should also serve the needs of the future society.

The curriculum revision programme in Kerala was conceptualised on the basis of the recommendations of the National Curriculum Framework (N.C.F-2005). The curriculum revision initiated in 1996 in Kerala had a strong influence in the formation of National Curriculum Framework. Kerala could display the active working model of a learning process that has its foundation in the principles of Constructivism and a learner-centred, activity-based and process-oriented pedagogy. Therefore, we must now envision educational reforms that go beyond the National Curriculum Framework, making it a springboard for further research.

The curriculum that has been designed, along with the learning materials prepared, has much to claim on the grounds of quality. But it should also serve to bring about changes in the academic environment that usually tends to stick to worn-out practices. A new trend can be established only with the active participation of the civil society, which would make the curriculum popular and acceptable. It is hoped that with determination and hard work such a curriculum can be formed.

Wishing the endeavour all success,

Chairman

(Principal Secretary, General Education)

Core Committee

Curriculum Revision Committee, SCERT, Kerala

'What we have left out of consideration so far, or perhaps not considered sufficiently seriously, is the problem of what subjects should be included in a curriculum that takes into account 'the times, the location and the nature of the society' it is rooted in and what benefits are expected from the subjects that are so included. It would not be true to say that this problem had not been considered from the beginning. When the educational experts who were the spokesmen of colonialism laid out a curriculum, they had some considerations in mind. It is as though those considerations have not been questioned since then. We have only attached bits and pieces to what was laid down then. In short, we have not tried to bring about a fundamental change in the matter.

(Public Education - What for? How? - Joseph Mundasseri)

Preface

There is a general demand to explain the social aims of a curriculum. A student who completes his/her school education is expected to be able to face any real life situation boldly and should be equipped to get employed at the time of completion of his course. This is the purpose of general education and not a mere internalization of academic subjects.

But the number of the educated unemployed in Kerala has risen to 34 lakhs. They form the majority of candidates who have registered themselves as unemployed hands at Employment Exchanges. One of the reasons for their failure in finding employment is lack of training in vocational skills.

How many of us are aware of such a socio-economic crisis among the students who have completed their schooling? Most of us believe that the students who qualify the Higher Secondary course get admission for professional courses that fetch them secure jobs with a good pay. But this is not the reality. Only a few thousands are lucky enough to enrol themselves for professional courses. About 50,000 students secure a Bachelor's degree and subsequently a Master's.

It must have been his far-sightedness in this regard that made Sree Narayana Guru stress on the need for vocational education in Kerala. Later, Mahatma Gandhi, Prof. Joseph Mundasseri (the first Minister for Education, Govt. of Kerala), the Kothari Commission and the National Education Policy of 1986, reiterated the same idea. The revised scheme of approach designed by the eleventh plan of the Central Planning Commission also highlighted the necessity of vocational education at the Higher Secondary level. Even then, we could not implement these proposals to the fullest degree.

The aim of Higher Secondary education is to prepare the aspirants of higher studies and jobseekers at the same time to pursue their goals in the way they wish. This calls for a radical change in general education, the negligence of which would eventually lead to the creation of a huge number of unemployed job-aspirants in the state. Diversification of the curriculum at the secondary and the higher secondary levels is one of the solutions. In India we have only 40 subject areas that are included in the curriculum. In almost all the western countries, about 3000 subject areas are included in the curriculum. The number is 4000 in the case of China. The eleventh plan of the Central Planning

Commission highlights the necessity of such a transformation in the educational field in India.

Such a change cannot be implemented overnight. As a first step, it should be possible to make students aware of the different trades in the present job market, when they enter the stream of Higher Secondary education. It is quite easy to state this as a theory or as an aim. But the transformation from the mere issuing of certificates that proclaim the student 'eligible for higher studies', to a comprehensive programme that equips students with diverse interests to achieve their goals, is a hard step to take. It hardly needs to be stated that the impact of such a transformation will be understood only after years of analysis.

To bring about a change in the curriculum, there has to be a total change in the declaration of the aim of the curriculum. By this, we mean that there should be change in the infrastructure of our schools. We should also reform the academic environment. A renewed spirit in seeking theoretical and practical knowledge should be instilled among our teachers and academicians. Along with this, there should be a call for a total change in attitude on the part of the teachers, parents and the learners. It has to bring education of the marginalized sections like the Scheduled Tribes, Scheduled Castes, other socially and economically backward classes and women to the focal point.

In accordance with the changes envisioned at the higher secondary stage, there is need for change in the curriculum from the primary to the secondary level. This should address the transactional strategy as well as the subject areas. At present, the curriculum at the primary level is designed in such a way as to provide the basics for what is taught at the higher secondary level.

The learning of Science and Mathematics at the upper primary level has to be more activity-based and relevant in real life situations. The 'fear factor' among learners about Mathematics has to be overcome by directing their interests to nature and to real life situations, encouraging them to discover the mathematical logic behind the objects they see. This could be accomplished by mathematizing one's thought process.

The learning of Science should instil in the learner, the ability to observe nature, to follow it by analysing every minute detail of the issues, evidence and facts related to it, and to formulate rules that are universally applicable. These rules should enable them to arrive at valid theories that substantiate their observation and analysis. The learner, in turn, should also make him/

herself aware of the evolution of Science as a field of study. While at the upper primary level consideration is given to the process of learning that is involved, the Secondary level should focus on creating young scientists with an inclination for scientific pursuit who are capable of questioning and experimenting. The learners should have an aptitude to approach the complexities of nature in a comprehensive manner and to analyse and differentiate its various aspects.

A learner who completes his/her studies in the 8th standard should be given an opportunity to operate in the field of his/her choice, which can be labour, art, physical education or work experience. This must function as a platform for acquiring experiences in the field of his/her choice. In the 9th and 10th , focused learning and vocationalisation of learning has to be considered. Such a system should also have provision for the learner to return to the academic stream if he finds that the field of interest he/she has opted for at the secondary level is not suitable for him/her.

The present concept of languages in the curriculum also has to change. The mother tongue should be the medium of instruction. The trilingual system that is followed has to be continued. But, the existing method of learning English and Hindi has to change. Learners should acquire proficiency in all the three languages by the time they complete their secondary level. They should have the ability to interact with the society, using all these languages. The increasing demand for English and the societal pressure on the learners to achieve proficiency in that language should be considered in designing the curriculum of English language.

Learners from every stratum of the society could be encompassed in the boundaries of general education till date, irrespective of their socio-economic and cultural differences. Even then, we were not able to design a curriculum at the secondary and higher secondary level that suits the different cultural environments and life situations. It is observed that out of the 100 scheduled tribes learners only seventy reach the secondary level and appear for the SSLC examination. Of these, only 35% get the opportunity to enrol for the higher secondary course. Learners who are socially and economically backward experience this academic backwardness. Girls are also denied this fundamental right. It is found that these dropouts form the major chunk of our labour strength in the production sector. Unfortunately, our secondary and higher secondary streams of education alienate these students from the main stream of education. There must be a radical change in this regard.

It is not through repeated learning and by providing learning aids or by arranging tuition or supplying guides that we have to help our learners. It is through changing our educational institutions in such a way that every learner gets opportunity in the long process of education to prove his/her mettle and to find out his/her area of interest, thereby assisting the learner to recognize his/her potential and identity. The educational institutions must rise to the level of a common rendezvous for the society to acquire knowledge in different ways. But we have to set apart five instructional hours a day for formal teaching even while we do this.

Local self-government institutions should shoulder more responsibility in the process of education. Our schools should act as manufacturers of human resources for a better society in the future. Local self-government bodies must provide facilities to mould the school-goers of their administrative jurisdiction into citizens with immense potential and expertise. Such a concept is totally different from judging an institution as uneconomic on account of the students enrolled. Instead of weakening the stream of general education on purely financial reasons, the Government must reiterate its sense of responsibility to the field of education, by ensuring the involvement of local self-government bodies.

There should be reforms in the methodology of learning, infrastructure facilities, teacher intervention strategies, approach of different subjects, course design, existing structure of subject combinations, educational management, curriculum, text books, teachers' handbooks and evaluation.

The history of educational development of Kerala is the history of the struggles for emancipation and for overcoming adverse conditions. These struggles paved the way for universalisation of education in Kerala society. The proposed curriculum revision aims at spreading the good results of these struggles to the process of education as well. The general stream of education should also impart experiences to the majority of learners to intervene effectively in any of the vocations of their choice. Through this, we should ensure active participation of the majority in the process of production of our society. To bring about such a change, we have to envision a curriculum that will safeguard the interests of all and at the same time pay more attention to the aspirations of the common people who form the majority of our social framework.

The draft framework of the proposed curriculum, that was formed on the basis of the studies conducted by 14 focus groups and with the discussions of the core group, has been discussed in all the levels of local self-government bodies.

Along with this, by publishing the draft of the curriculum frame work in internet opportunities were given to people who are interested in educational activities to register their opinions. This shows the significance of the ideas put forward in this document. SCERT submits this document before the curriculum committee by incorporating all the suggestions evolved at various stages of discussion of the draft proposal. We earnestly request you to approach this curriculum framework, recognising the role of education in the developmental needs of Kerala.

Director
SCERT, Kerala.

1

KERALA'S EDUCATIONAL SCENARIO: An Overview

1.1 Introduction

Kerala views education as a crucial path for shaping its future. To face the challenges of the present-day world, we have to envision a progressive and comprehensive education system. However, a close look at society indicates the existence of a section of people who have an intense desire to gain social and financial supremacy. Another group is striving hard to free itself from the clutches of poverty and procure the basic necessities of life. For attaining a balanced development that aims at common good, it is essential to place common interest over personal interest. It is in this context that the wider meaning of democracy, secularism and social justice gains ground.

For Mahatma Gandhi, the father of the nation, education is a powerful tool for liberation. According to him, liberation has two functions. First of all, we have to shake off the shackles of servility. In order to carry out the administration of the colony effortlessly, the colonisers had thrust slavery upon us. Along with physical servility, they had ensured intellectual dependency. Even for earning a living, we had to depend on the imperial masters. The educational policy of the time led to a total submission of the self on the part of the colonized. Many plans were devised from those early days

onwards to find an escape route from the measures imposed by the coloniser.

The liberation from the grip of superstitions and malpractices prevalent in the society that putrefied the entire system is another point of action. These movements of liberation had a place in the National Liberation Movement as well. But we could not sustain the radiance of these noble ideas after the attainment of independence. An educational policy that intends to bring about the emancipation of the masses from all kinds of servility has to lay stress on these ideas. It is through education that the individual and the society gain the strength to resist oppressive forces. Education liberates man from the state of inaction that is imposed by the prevailing malpractices and superstitions. Reform in school curriculum, in this context, seeks to be based on our past experiences, the existing social trends, the interests of the state and a clear perspective of the future.

Kerala is way ahead of all other Indian states in popularising general education. In the year 1947, the rate of literacy in the state was just 51%. Kerala attained total literacy in 1991. The rise in the rate of enrolment in schools, the fall in the number of drop outs and the availability of academic opportunities and facilities

have paved the way for the attainment of total literacy.

1.2 Pre-Independence Period

Any one who examines the annals of Kerala history can see the fact that percolation of education in the state was based on the needs of the society. The oppressed classes of Kerala once declared, "If you're not willing to educate our children, we're not willing to work in your fields." This best exemplifies the realisation of the society about the value of education as the only means of liberation. Sree Narayana Guru insisted that we should enlighten ourselves with education as he was quite sure that it was the only means for social progress. It is in the Renaissance period that social reformers and the reformation movements in Kerala razed down the road blocks that prevented popularisation of education.

The contribution of Christian missionaries deserves attention here. Interventions of missionaries helped in bringing the marginalised groups into mainstream education. Women's education also gained momentum.

The purpose of education during the colonial period, as proposed by Lord Macaulay, was to fetch cheap labour at the lower levels of administration, expand trade and widen the rift between the privileged and the poor. The nationwide renaissance movement of the 19th century resulted in social awakening in Kerala. The ruling class could not ignore the needs and exhortations of the social reformist movement. The administrative reforms that were implemented as a result of these could influence the field of education.

Legislations like *Paattavilambaram* which resulted in visible changes in land reforms led to the emergence of a new generation of educated people in Kerala. By 1817, the Travancore regime introduced free and compulsory education for all its subjects. They even opened schools in rural areas. This initiative might have helped in protecting the interests of those who controlled education. However, it paved the way for the popularisation of education. Later, a strong move was set in our society against the elitist approach to education. Efforts can also be seen, even today, in providing quality education to a privileged few. An educational reform that is based on social justice must fight against such moves.

1.3 Post- Independence Period

The various governments that ruled from 1947 till the formation of Kerala in 1956, had taken strong measures to empower education. The Government of Kerala, after the formation of the state, set the direction for the educational system by declaring that the state would provide for:

- compulsory primary education for all
- educational expenditure of all children
- free text books and lunch for the needy

The Land Reforms Act, that was brought into effect at this time, played a greater role in the expansion of education. When the labour class could set themselves free from their stigma as tenants and acquire the ownership of a slice of land, it led to the creation of an awareness on their rights. Further, this awareness became an inspiring force for education. The

perception that knowledge and power as citizen's right provided fresh impetus on education. The policies followed by the successive governments in Kerala made formal education more accessible to its common folk. Some of the major initiatives taken include:

- providing text books at low prices
- withdrawing tuition fee
- allowing concessional rate for students' conveyance
- providing free lunch in schools
- ensuring at least one high school in every Panchayath
- adopting new approach for promotions to higher classes
- expanding vocational and technical education
- taking steps for ensuring higher secondary education for all
- bringing higher secondary within the fold of school education
- envisioning IT as a part of the curriculum
- launching of EDUSAT and VICTERS channels
- strengthening the school library system

Thus the efforts of various governments in Kerala have enhanced the educational opportunities in the state. Today, there is at least one lower primary school in a radius of 1 kilometre, one upper primary school in a radius of three kilometres and a high school each in a range of four kilometres. It is an added advantage that higher secondary schools are set up within the reach of the students in most places. But, we could not accomplish this dream especially in tribal areas like Wayanad and Idukki.

1.4 Quality Education

Along with the effort of universalisation of education, Kerala started focusing its attention on quality education. Certain voluntary organisations with social commitment undertook research studies in this field. Their experiences and inferences augmented later academic initiatives. During the same period, nationwide discussions on how to realise quality education were held. National Policy on Education (NPE) - 1986 (revised 1992) laid stress on universal enrolment and retention along with quality education. The following initiatives of central and state governments mark their commitment to provide quality education.

- launching Operation Blackboard (OB) scheme
- launching Special Orientation for Primary Teachers (SOPT)
- establishing State Council of Educational Research and Training (SCERT)
- setting up District Institutes of Education and Training (DIET)
- establishing Colleges of Teacher Education (CTE) and Institute of Advanced Studies in Education (IASE)

With the implementation of Panchayati Raj, doors were opened for participation of local self-government bodies in education. This initiative provides for decentralised decision-making in school education. At the school level, it has a wider meaning in academic planning and leadership. Participation of local self government bodies in education

encourages community intervention for enhancing quality and accountability.

The Panchayats and Education

The 73rd Constitutional Amendment established the three-tier Panchayati Raj system in the country, with elected bodies at the gram, taluk and zilla levels to enable people to think, decide and act for their collective interest, to provide for greater participation of the people in development, to ensure more effective implementation of rural development programmes in the state and to plan and implement programmes for economic development and social justice. The 73rd Constitutional Amendment identified 29 subjects for transfer to the panchayats, including primary and secondary education, adult and non-formal education, libraries, technical training and vocational education. All state governments enacted their state Panchayati Raj Acts in order to realise the constitutional mandate of decentralised democracy and development.

NCF - 2005

The Minimum Levels of Learning (MLL) programme that was introduced across the country by taking twenty schools in every district on an experimental basis, was a milestone on the path to ensure quality education. However, the MLL approach was criticised from the very beginning for its lack of holistic approach, mechanical presentation of the levels to be achieved and the transactional methodology based on behaviourism. As a result of this development, NCERT took steps for reviewing and reformulating the programme.

Apart from this, the work done by various voluntary organisations paved the way for innovations in school education.

The fast changing social order made it inevitable to introduce scientific and innovative perspectives in the field of education. This created a momentum that led to the curriculum reform in 1996-'97. The experiences that were gathered during the introduction of DPEP in select districts of Kerala during 1994-'95 from classes I to IV were helpful in this reform effort.

Some people were critical of this curriculum reform. As a result, the activities aimed at ensuring quality in the field of education slackened. Yet the felt need of the society for quality education, provided a strong ground for continuing the curriculum reform effort. The evaluation process and the system of grading suggested by the new curriculum were implemented up to class X in 2004-'05.

In fact, the curriculum reform was based on the vision of education as a social process. The methodology outlined by the curriculum stresses on activity-based process-oriented learning. It also stresses on enquiry-based learning and liberal democratic learner-friendly approach that lead to the overall development of the learner.

As a result :

- the process of construction of knowledge took the centre-stage
- teachers accepted enquiry as a method of learning
- the awareness that learning should not be restricted to the classroom alone became part of the curriculum transaction
- systematic planning and collective effort of teachers were recognised as an integral part of school culture

- continuous and comprehensive evaluation process was introduced
- essentiality of the collective effort of the society and its intervention in school activities were felt

The new curriculum is integrated, process-oriented and learner-centric. Instead of the mechanical transactional strategy and rote learning, engaging learners in enquiry and discussion and making their own inferences mark a visible change in the classroom process. Teachers realised that learners could be managed and directed to what is right, without resorting to the usual modes of corporal punishment. We could introduce learners to noble ideas like sense of collectivity, equality, gender equality, awareness on environment and nationalism to an extent. We have also been able to make sufficient progress in continuous evaluation and in identifying the aptitude of the learner as well.

1.5 Awareness

No effort has been made in Kerala to develop a comprehensive curriculum covering the entire spectrum of school education – pre-primary to higher secondary stages. The learning process had never received due importance in all subjects across all levels of schooling. Teachers are not equipped well to cope with the changes envisaged in the revised curriculum. However, those few who could internalise the essence of the curriculum change attempted to explore the possibilities of the new pedagogy. It means that effective management of implementation of the new curriculum can reap the desired results.

The changes that have taken place in the mindset of certain sections of the

society seriously affected implementation of the curriculum reform process. The desire for securing middle class jobs, emigrating to foreign countries and passing the entrance exams for professional courses further enforced the prevailing conventional transactional strategy. Criticisms levelled against the new curriculum by the market forces also posed hurdles. The preference of the middle class for CBSE and un-aided schools further intensified the issue. At the same time, the schools that tried to implement the new curriculum failed to get the much needed backup from the support systems. Despite these challenges, Kerala society in general took a positive stance towards curriculum reform. It has meaning in this context to point out that certain reflections of the curriculum reform experiences of Kerala are visible at the national level curriculum reform (NCF - 2005).

A decade-long experience in the field helped us to realise the following:

- need for systemic reform in tune with the curriculum reform
- implementing curriculum reform with commitment
- creating school infrastructure facility for providing learner-friendly atmosphere
- informing the society of the relevance of curriculum reform
- designing strategies for the overall development of the child
- designing curriculum objectives foreseeing the needs of future society
- recognising the need for flexible textbooks including all learning materials

2.1 Introduction

Kerala's effort to develop a curriculum framework is a turning point in the history of the state. It is for the first time that the state is making such an exercise and it is rooted on the ideas articulated in the National Curriculum Framework (NCF) -2005. Whenever curriculum reforms were taken up at the national level, the state responded to them in the past.

After the formation of NCERT in 1961, Kerala has been following all the curriculum reform efforts initiated at the national level. For instance, the state initiated the process for reforming its curriculum following the National Curriculum Framework -1975. The state also took steps to implement NPE- 1986 and the Programme of Action (1992). It was in 1997, that an effort for the formulation of a comprehensive curriculum focusing on the process of teaching and learning was attempted in Kerala. Rooted in the emerging methodology and strategies, an integrated method of learning, a process-oriented-activity-based approach, viewing learner as a constructor of knowledge, recognising the role of society in knowledge construction and the idea of continuous and comprehensive evaluation came into

effect. However, the state's curriculum reform effort gained further impetus with the formulation of the National Curriculum Framework (NCF) -2005. NCF-2005 and the position papers provided grounds for introspection and formulation of the Kerala Curriculum Framework (KCF)-2007.

2.2 National Curriculum Framework -2005 and Kerala

Kerala society by and large recognised the relevance of the new curriculum initiated by the state in 1997. NCF-2005 gives us deeper insight to address the problems Kerala encounters in the present educational scenario. NCF-2005 has incorporated the theoretical, ideological and historical approach that we had assimilated in our curriculum. This could be treated as a sign of recognition to Kerala's vision of education.

Our classrooms in the past reflected the features of an undemocratic power-structure. The prevailing classroom practices then promoted the culture of passive listening. They were dominated by the voice of the teacher and the learners did not have an opportunity to raise questions or enquire. On the other hand, the new curriculum gives the learner more space than ever before for co-operative and collaborative learning. The rights of the learners have been

recognised and the crucial role of learners in acquiring knowledge has been established. This paved the way for creating a democratic atmosphere in classrooms. Thus, the construction of knowledge and its social dimensions have become complementary.

In the context of globalisation, Kerala is facing serious issues in the field of education arising from privatisation of education, mushrooming of self-finance institutions and the craze for market-oriented courses. Globalisation has also exerted its influence on environment, health and resource management. Likewise, a range of issues emanating from dehumanisation of society, religious intolerance, indifference towards democratic process, increasing inequalities, growing violence, market-oriented approach, disintegrating family ties, deteriorating gender relations, desire to accumulate wealth, craze for drugs among youths and tendency to commercialise and communalise education and culture pose serious threats to a democratic society. A curriculum that doesn't address these issues can never lead us forward.

On deeper analysis, the wide range of issues we confront can be identified as:

- absence of a vision of universal humanism
- lack of human resource development
- lack of understanding of the specificities of cultural identity and its need to develop freely
- inability to see agriculture as a part of culture
- lack of a scientific approach to health and public health

- lack of due consideration towards marginalised groups
- lack of scientific management of land and water
- lack of eco-friendly industrialisation and urbanization

2.3 The Vision on the Future Society

Reforms in education need to be formulated in tune with the vision of our society. We need to create a future society that ensures creative and collective involvement of all people. This is based on progressive ideas, lessons learned and experiences gained. Discrimination based on caste, creed, financial status and gender does not find any place in such a society. We dream of building a society that:

- values nationalism, self sufficiency, cultural identity, democratic rights and principles
- focuses on the welfare of the poor and the downtrodden and highlights a development model that utilises resources in order to get the best results
- envisions a social system that taps human energy for sustainable development
- ensures collective and cooperative efforts of all. A society that provides for a justifiable and effective distribution of wealth
- accepts knowledge as wealth for all and realises quest for knowledge and critical thinking as the foundation for the construction of knowledge
- fights against discrimination towards historically and socially marginalised sections of the society and accords

equal status to both men and women

- respects the cultural diversity of different groups and protects their identity
- stands against the tendencies of a consumerist culture
- joins hands against social evils and shows readiness to lead movements for social progress

2.4 Aims of Education

While formulating the aims of education of the state, we must envision a society that is capable of nurturing and strengthening the democratic and secular nature of India. Such a society envisages an educational system that provides for the fullest development of all without any form of discrimination. Every individual should develop within him/her the perception that his/her prosperity results in the prosperity of his/her family as well as the society he/she is a part of. In such a society the aims of education (should cover) can be stated as:

- **Social justice**

The education system that is envisaged should be capable of promoting a social order based on equality and justice. This is more so when we think of the liberation of a society where disparities in terms of religion, caste, wealth, gender and region exist. Education in such a society should help in building up a culture of living co-existence.

- **Awareness on environment**

A comprehensive awareness on the need to protect environment is the need of the hour. Keeping in mind the vision of sustainable development, we need to

develop an attitude in our learners to see meaning in all developmental activities in tune with the environment. They should also develop a sense in preserving all available resources in nature and to utilize them judiciously.

- **Citizenship**

There is a need for empowering each child to grow up and develop as a responsible citizen of the society. The civic sense should ideally include historical awareness and a balanced political vision.

- **Nationalism**

Creating a generation upholding nationalism rooted in a universal vision is the need of the times. Human progress and universal love form the basic dimensions of such a vision. While recognising the plurality of Indian society the nationalistic vision should help in capturing the meaning of unity in diversity.

- **Awareness of one's rights**

Realizing the rights accorded to every individual by our constitution is of great significance. Education needs to actualise the rights ensured in our constitution and also the rights enumerated in UN conventions on children's rights (CRC-Convention on the Rights of Children), women's rights (CEDAW - The Convention on the Elimination of All Forms of Discrimination against Women) and human rights (UNCHR-United Nations Commission on Human Rights). All children need to develop an awareness of one's own rights and the rights of others.

- **Awareness of Science and Technology**

All learners should get opportunity to

acquire current developments in the field of science and technology and apply the same in real life situations. They need to enrich their knowledge and skills in tune with such developments. The process of education should have scope for this.

- **Scientific temper**

There is a need to differentiate between science and pseudo-science. Learners should approach a problem based on cause and effect relationship. An education that develops logical reasoning in children is crucial in this context. They should play a key role in freeing the society from superstitions and prejudices and should propagate the need for a scientific outlook in life.

- **Cultural identity**

Regional and traditional forms of knowledge (related to agriculture, irrigation, resource management, art and handicraft) can be utilised for the development of the society. The process of education we envision should help the learners to identify such sources and preserve what is useful and relevant.

- **Vocational skills**

Knowledge and labour are complementary. We must realize the value of labour in developing and transforming the society. In this context education should focus on the development of a positive attitude to labour and inculcate in all children the ability to work.

- **Democratic values**

Education should help the learner in imbibing democratic values - equality, justice, freedom, concern for others' well-being, secularism and respect for human dignity and rights. This should be done

in such a way that the learner gains a better insight into democracy.

- **Resistance**

Strength to resist all sorts of invasions (cultural, economic, geographical) and undesirable tendencies triggered by globalisation is vital for a democratic society. Education needs to recognise this reality and develop the required strength among the learners to address the challenges posed by globalisation.

- **Construction of knowledge**

Knowledge is a common good. Any attempt to hide or mystify it must be questioned. The process of constructing knowledge has its unique features. Knowledge is never viewed as a finished product. It is refined in every act of sharing. The process of education must develop in learners, the ability to construct knowledge through interaction and sharing.

- **Critical approach**

The education we envision should have the space for learners to engage in critical dialogue. The practice of passive listening has to be discarded and in its place learners need to become active participants in the process of constructing knowledge. They should view their experiences in a critical manner and should question all social evils. Efforts to resist temptations, obstinacy and prejudices are equally important. Looking at different ideas and generating an integrated view is crucial. Learners must be able to analyse the ideas in vogue at social, political and cultural levels, discern errors and take positions by responding to them. The educational system should prepare the learners to

shift from the position of passive listeners to active constructors of knowledge.

2.5 Education and Social Justice

We aim at the universalisation of education up to the higher secondary level. We need to recognise the essentiality of ensuring the birthright of all in the society to develop their potential to the full as our goal.

Diversity is an essential feature of a pluralistic society like that of ours. We need to ensure an educational system that accepts and nourishes this diversity. Differently abled children and those who face social challenges seek attention. Let's list them:

- girl child
- children from SC/ST category
- the hearing impaired
- the visually challenged
- the mentally challenged
- the physically challenged
- HIV infected children
- children of parents with HIV
- linguistic minorities
- children from broken families
- drug addicts
- children of drug addicts
- the socially and economically deprived
- nomadic children
- the delinquent
- victims of natural and man-made calamities

The list can be extended further. The physical and mental challenges that these children face are varied. The problem of each and every child may be case-specific.

Still, we must identify the issues they confront and ensure quality education for all.

2.5.1 Gender discrimination

Equality of gender is a constitutional right. After the Education Bill-1957, the changes that have taken place in the field of education in Kerala had their reflections on the education of girl child. It was the Education Commission (1964 - 1966) that made suggestions on education for women and their empowerment. Any development index would indicate that the status of the women in Kerala is much higher than the national average. Yet, the issues that women and girl children face in Kerala seek special attention.

In Kerala, the number of girl children enrolled and continuing their studies is quite satisfactory. Many of them go on to achieve higher academic degrees. But, a corresponding surge in social interaction and involvement in the public sphere is not satisfactory when compared to that of women in other states. We need to ensure an education system that helps to build a society which upholds gender equality.

(i) Current issues

- imposing stereotype roles on the girl child by the society
- low literacy rate among girls in the tribal, slum and coastal areas
- gender discrimination inside the classroom
- assigning domestic work to girls
- exploitation in the workplace and disparity in wages
- dowry system and its consequences
- lack of opportunity to pursue studies

according to choice

- low representation of women in decision-making bodies
- lack of opportunity to grow and develop with self-esteem
- lack of awareness about such discrimination

(ii) Suggestions for curriculum formation

- content organisation, language and presentation of the text in a way that ensures gender equality
- building awareness that all types of employment can be taken up by both men and women
- addressing social issues such as dowry, gender discrimination and the rights of the girl child in subjects like social sciences
- Placing stress on the constitutional rights of women and the legal protection accorded to them
- exposing learners to know more about women who have excelled in different fields of life
- making adolescent education a part of the curriculum by giving attention to adolescents' problem
- introducing counselling as a part of the school system
- sensitising both boys and girls on the issues related to gender discrimination
- providing vocational education to both boys and girls
- organising club activities and designing projects that help girls to nurture their leadership qualities

- encouraging co-education at all stages of schooling and ensuring gender equality within the school system
- organising physical exercise programme at school with foci on physical, mental and emotional health of the students
- providing opportunity for girls for developing their personality
- providing girl-friendly toilet facilities
- sensitising parents on gender equality
- highlighting gender equality in both preservice and inservice teacher training programmes

2.5.2 Socially and culturally marginalized

Ours is a plural society. Only if we succeed in bringing the marginalized to the mainstream will we succeed in actualising social justice. The educational system in our state has not yet been transformed itself to meet the needs of children who are socially and culturally backward. General education must accommodate all children who are socially and culturally deprived.

(i) Current Issues

- non-availability of schools within easy reach for tribal children
- poverty remains a roadblock in educating such children
- child labour continues to pose a major challenge
- non-availability of educational concessions on time
- lack of a conducive home environment

- inadequate facilities in institutions set up for the marginalized
- lack of learning materials that suit the different languages of tribal groups
- discriminations that prevail among them
- superstitious practices that prevail among them
- inferiority feeling arising out of the marginalised status
- children being left alone at home as parents cannot adjust their working hours according to the school time
- lack of awareness among parents regarding the emotional support to be accorded to children

All these create hurdles in the educational progress of the marginalised. There should be earnest efforts to address such issues involving different functionaries. The traditional wealth of knowledge of the tribal and dalit children should be valued. Their language, dress, customs, vocations, beliefs, health care, art and literature are important elements of their tradition.

- (ii) Ethnic characteristics of every tribal group is inherent in their language. They should be given opportunity to use their language as the medium for interaction and learning. Learning materials should be developed in tune with this. Due recognition should be given to traditional vocations such as weaving baskets and mats, collecting of forest produce, engaging in handicraft and artwork in curriculum. Folk tales, myths,

legends and lores of each tribe are the integral part of their culture. These should find space in the learning of language and literature.

The identity of each diverse social group needs to be respected. Teachers should try to inculcate self-confidence in children. Efforts should be made to develop a scientific perspective on ensuring justice to all.

Self-esteem and self-reliance of the children should be promoted. Teachers should try to make children aware of their cultural heritage and the need to respect it. The process of accelerating the socialization of the backward classes is also a part of educational endeavour. Curriculum should have space for multiple channels for the continuous development of these children. Each child should be provided guidance till he/she achieves his/her goal.

An atmosphere that helps the child view the school as his/her own home should be created. The child should be enabled to interact with every one in a natural manner and must engage in various activities with a sense of equality.

2.5.3 Inclusive education

The education policy formulated in a country should aim at bringing all children to schools. In order to realise this aim, children who are physically and mentally challenged must also be brought to schools. As a part of this, children who are differently abled should be brought to the mainstream. That is the ultimate aim of inclusive education.

Policy of Inclusion

A policy of inclusion needs to be implemented in all schools and throughout our education system. The participation of all children needs to be ensured in all spheres of their life in and outside the school. Schools need to become centres that prepare children for life and ensure that all children, especially the differently abled, children from marginalised sections and children in difficult circumstances get the maximum benefit of this critical area of education. Opportunities to display talents and share these with peers are powerful tools in nurturing motivation and involvement among children. In our schools we tend to select some children over and over again. While this small group benefits from these opportunities, becoming more self - confident and visible in the school, other children experience repeated disappointment and progress through school with a constant longing for recognition and peer approval. Excellence and ability may be singled out for appreciation, but at the same time opportunities need to be given to all children and their specific abilities need to be recognised and appreciated. This includes children with disabilities, who may need assistance or more time to complete their assigned tasks. It would be even better if, while planning for such activities, the teacher discusses them with all the children in the class, and ensures that each child is given an opportunity to contribute. When planning, therefore, teachers must pay special attention to ensuring the participation of all. This would become a marker of their effectiveness as teachers.

(NCF-2005)

It is essential to maintain clarity on major aspects of learning in a curriculum reform effort. The rationale behind such a stand and the measures taken for transforming it into a reality, as well, are important in this context. The following questions assume greater significance in this situation.

1. Why do children learn?
2. What do they learn?
3. How do they learn?

The previous chapters detail the answer to the first question. Now, let us reflect on the remaining questions.

3.1 What is to be learned?

While designing the content of learning, we proceed based on the aims of education. This is done by analysing the prevailing social conditions and by defining the role of the individual in the society.

There exist many contradictory forces in our society. Society consists of people from different economic strata along with different forms of power structures. There are certain hierarchical issues emanating from cultural, social and gender-based differences. Though the human race has gained considerably through the advancement of science and technology, the gains are not equally benefited by all. Besides, such advances have led to intensification of the existing

stratification. Globalisation and commercialisation too have weakened the gains attained earlier. Likewise, the growing tendency for accumulating wealth, expanding trade and generating desires is widespread today. Disappearance of agricultural and traditional trading practices is also seen. Corruption, aggressive tendencies, rates of suicide, communalism and superstition have multiplied manifold.

At this point, the question of what the content of the curriculum should be, gains ground. It is a fact that only through a proper analysis of the yesteryears and a critical reflection of the present-day would help in shaping a better tomorrow. As such, there is no scope for excluding present-day reality from the classroom. Everyday reality remains a decisive factor in the life of the child. It is only through education that a generation capable of social commitment and critical reflection can be created. Knowing today's life is an essentiality for preparing for tomorrow.

The content of learning is unfolded based on the child's array of experiences. These experiences are directly linked to the problems faced by the society. We can mark an individual in different ways. For this, different parameters can be drawn. On a cultural plane, Kerala remains a rich source for many forms of ideas and experiences. When the child analyses the regional, national and international

levels of realities, even while remaining within the concrete reality called Kerala, learning becomes more meaningful. It is expected that the curriculum becomes reality-based when it is framed focusing on the issues faced by the Kerala society and also having openings to connect to national and international levels. Certainly, the problems that are faced by the Kerala society are not confined to Kerala alone. The causes and range of implications of these problems could be national or international. For instance, when there is a reference to an environmental issue in the state, there is every chance to widen the prospect of study to environmental issues at the global level. In short, while Kerala remains a concrete reality in the curriculum, it would also become a springboard for connecting to different levels of realities.

The values and perspectives that are envisioned by the constitution and also identified at the national level remain significant components of the curriculum. Such a curriculum can help in shaping the new generation with a sense of patriotism, a democratic and secular outlook, a perception of equality, a sense of pride in one's own cultural identity, an awareness about the environment and a concern for the marginalized. Cultivating values is possible only through a wide range of experiences. The learner goes through an experience that gives him/her an insight into the existing social issues which in turn leads to a point of realization. For instance, in generating environmental awareness, we facilitate the students to discover the contemporary reality that leads to environmental degradation and

make them get involved in such issues to find a solution. Otherwise, value-based education will not create any impact on the child.

We have already stated that the curriculum framework is formulated based on social issues. This does not mean that the child gets exposed to social issues right from the lower classes. The horizon of experience that the child builds in him/her, would be something that subscribes to his age as well as the range of exposure he/she gets. Its volume increases gradually. Sometimes it may become an academic issue that is directly or indirectly related to a social issue. Anyway, what is needed is formulation of a curriculum constructed on issue based and problem oriented approach. For identifying and analysing these issues, the ideas propounded by science and the scientific method could be of use. Mathematics will be helpful for both logical and quantitative analysis of issues. Analysis of social aspects of the issues could be performed with the help of Social Sciences. Languages function as tools for discerning the problems and communicating them. Art Education, Physical Education and Work Experience provide space for gaining experience, developing expressions and finding solutions to various issues. At the level of the lower classes, an integrated approach could be followed. As we move on to the higher levels, there is scope for diversification and specialisation.

Knowledge and skills in each subject area are organised based on specific aims and approaches. They are ordered in a spiral form in tune with the age, previous knowledge, learning methodology and level of interaction of the learners. The

new curriculum does not intend to include frozen fragments of knowledge just because they were taught from time immemorial. New elements of knowledge, methods of analysis, processes and activities which were unknown hitherto will be incorporated in the new curriculum. There should be the realization that knowledge is socially created, culturally placed and historically marked. That should not get restricted merely within the content of the subject concerned. Instead, its relevance should be highlighted by locating it in a wider social reality.

However, we need to consider the basic ideas articulated in NCF-2005. At the same time, we may proceed further with the knowledge that is socially relevant. Reformulation of the curriculum by linking it to the receptivity of the child and the hierarchical gradation of ideas becomes essential in this framework. The NCF-2005 perspective on critical pedagogy has greater meaning in our context. We have already mentioned that the contradiction that is found in the society could be seen in the classroom also. The classrooms may act as places where such contradictions get recreated. There is a general tendency to portray certain knowledge as noble and certain others as of less value in our textbooks. Culture, language and situations in life are pictured from a hegemonic point of view. The negative impact that such treatment of knowledge makes on the learners from disadvantaged background is immeasurable. Therefore, the content, language and presentation of knowledge in a textbook should be organised from a critical point of view.

'Learning' does not merely mean

understanding. It implies change. It is not just a gathering of pieces of information. They certainly form the basic inputs for the construction of knowledge. But there is no meaning in merely drawing conclusions from the gathered information. One should be able to move further by making suggestions regarding, or react against, the conclusions that are drawn. The learners should be capable of reflecting on issues such as the pollution of rivers, the marginalization of the under privileged, commodification of things around us, lack of acceptance of regional dialects, disappearance of traditional labour collectives, increasing gender inequality, suppression of high religious ideals by communal forces and the forces behind imposition of war. They should have the opportunity to express the acquired knowledge, share views, take a position and search for alternatives. In short, the curriculum should have the scope for reflecting the socially constructed knowledge from a critical perspective.

3.2 The Learning Process

Contributions of psychology and their logical treatment are important for understanding the learning process. We should accept what is relevant and cast off what does not appeal to reality.

Many streams of thought were evolved in psychology in the past. Behaviourism deeply influenced the field of education and it was widely accepted for a long while. The behaviourists put forward stimulus-response theory as the basic premise for explaining the learning process. This theoretical position provided justification for the traditional practices, rote learning, corporal

punishment, transmission of knowledge and the unquestioned position of the teacher in the classroom.

Principles of behaviourism were based on the experiments done on animals and such principles formed the basis for understanding human learning. Animals, in general, follow the elder ones by imitating and repeating what they see. Certain behaviours are instinctive in nature. They, unlike human beings, do not possess the modes of communication or higher mental ability to analyse experiences, or share their ideas with the rest of the group. But the limitation of the behaviouristic tradition is that it offers mainly stimulus- response and imitation principles to understand human learning. This compels us to look beyond the Behaviourist school of ideas and search for alternatives.

Another stream of thought is Humanism which has a deeper perspective about human individuality. It propounded that the nature of the learner must be respected, his individuality be properly acknowledged, learning must be directly linked to the real problems faced by the child and the teacher should intervene in such a way as to make learning an easy process. When the learner himself/herself identifies an issue, engages in it and makes self-assessment, learning becomes meaningful. Though this theory does not consider the social aspect of learning, the perspective advanced by it speaks of a curriculum that is democratic and child-centred focusing on human qualities.

Yet another school of thought is Constructivism that looks upon learning as an active mental process that provides for construction of knowledge.

Constructivism has two major streams. The first one looks at knowledge as an individual construct. Here the stress is placed on the child as an individual and his/her innate and distinctive abilities. That the knowledge thus gained by the child is incomplete and that it does not lead to the optimum level, are the criticisms levelled against this.

The other stream is social constructivism. This approach looks upon the learner as a social being who interacts with everyone around in the environment from birth and goes beyond the existing level to higher levels of ability. At the same time, the learner gains both biological and cultural development. Human beings possess such mental tools as language and mathematical signs and symbols, higher level of cognition and acquired wealth of knowledge. Child as compared to other beings, enriches all these by interacting with the society. Obviously, the learner can make use of human creations such as equipments, books, machines, institutions etc. In short, social constructivism tells us that the learner, by interaction with other members of the society using cultural tools, attains higher levels of development. Social constructivism, going beyond behaviourism and constructivism, advances explanations that focus on human understanding founded on the social aspects of human nature. It is significant to note that NCF-2005 underscores social constructivism in the process of learning.

This perspective provides for the natural development of the individual, connecting the individual and the society; and ensuring the development of both, are important for the creation of a future society based on democratic values.

When the learner engages in the critical reflection of his/her surroundings and himself/herself, he/she constructs knowledge that forms the basis for shaping the society. Social and cultural variations affect the abilities of the learners. Development is possible only when one keeps on interacting and questioning these limitations. As the process of construction of knowledge progresses, the outlook of life gets transformed. Education is a continuous process of construction and transformation. The approach to learning should be based on the ideas of social constructivism by assimilating the tenets of critical pedagogy.

Neuro-psychology explains the changes that occur inside the brain when learning takes place. Any piece of information that is gathered afresh is registered in the brain in the form of complex web-like structures. Today, instruments that are capable of capturing the images of changes that take place in the brain while learning occurs are available. Brain development happens mostly during childhood. There are phases of development for each ability. If age-specific relevant learning experiences are not provided to the learner he/she may face irreversible loss in life. These observations support the view that informal and varied games should be provided to the learner at the pre-primary level. Learning that nourishes different areas of cognition activates different areas of the brain. When we try to resolve an issue, the related parts of the brain as a whole get involved in this exercise. This substantiates the fact that variety of learning experiences that consider the development of all the cognitive areas of

the brain should be provided to the learner at the school level. At the same time, children may have a special inclination towards certain areas of cognition. Their mode of study will be closely linked to this. Their development is also connected to this. A curriculum that recognises the individual differences of the learners provides scope for the learners to locate their fields of interest and, by gaining progress in the field may lead to their own development along with that of the society. Neuro-psychology also points out that the lack of proper experiences in life and nutritious food, as well, have an adverse effect on learning.

3.3 Execution of the Learning Process

Learning is essentially an internal cognitive process. But, the school, home and other social environments constitute the physical and social aspects of learning. Incongruence between these two is likely to create problems for learning. Though it doesn't happen always, it remains a problem. Teachers and learning materials play a major role in resolving this problem. Learning episodes can either be formulated based on social issues or can be viewed as a form of knowledge that is essential for addressing social issues. Either way, the issues outlined in the text should be capable of motivating the learner who is a growing member of the society and a thinking individual. The learner begins to explore the issues. Here, the learner is not alone. The teacher and the peers are with him/ her. The parent and the society, as well, are available for help. Obviously, discussion and sharing of ideas pave the way for seeking solutions to the issues. Learner's ideas and suggestions are given importance.

He/she gathers information regarding the problem and analyses it with the help of previous knowledge, skills acquired earlier, specially prepared learning materials and timely intervention of the teacher. There is scope for responding individually and collectively upon the conclusions drawn. Throughout the process, there is sharing, debate, analysis and scope for betterment. This keeps on changing the individual as well as the society where he/she lives.

Teachers' understanding of the physical, psychological and social strength and weakness of the learner is important. Limiting the objective of the learning to the constraints around the learner is not advisable. Instead, there should be a joint effort to assist the child in overcoming the limitations and seeking solutions for ensuring higher levels of achievement.

Designing issue-based textbooks is our priority. Knowledge should not be treated as a finished product. Along with the context that details the issue, the general information for seeking solution needs to find space. If not, scope should be there for gathering such information. A learner should not become helpless in the search of prerequisite information while engaging in the construction of knowledge. This would especially further the handicap of disadvantaged children. At the same time, we should not deny the learners the opportunity for enquiry. Local information should be gathered locally. In this situation, the teachers, parents and the society around should take a supportive stance in the endeavour of the learner. In this context, the textbook has other features too. Space could be provided for the learner to record conclusions or reactions. Learning

activities too find space in the textbook so that parents can see what takes place in the school. PTA meetings held every month can be a source for providing specific information and reflection. Without the participation of parents, no curriculum can ever fulfill its objectives.

Handbook for the teacher should outline the curriculum objectives, social issues, the general approach towards learning, the approach towards the concerned subject and the process of evaluation. Clarity on the processes that are to be carried out, the conclusions to be arrived at, the attitude that must be developed, the responses that are expected and the resultant products, obviously needs to be maintained. Creativity in teaching is what we aim at within the framework of curriculum. Teachers are expected to share teaching models, examples and experiences during professional development programmes. Efforts should also be made to make the curriculum locally viable in such programmes.

In an issue-based curriculum, the local experiences of the learner are quite important. A curriculum becomes more meaningful when the local issues are reflected well in the learning materials and the lessons. Collective efforts in this regard at the school level, cluster level and panchayat level are advantageous. stress must be laid on access to locally developed reading materials and books, supporting documents, reference materials, IT-based learning materials etc. Children's literature that is helpful for learning is further required. Media have significant contributions in this area. The market based interference in the form of ready-made solutions that hinder the natural process of learning is undesirable.

It should not happen. Teachers and parents should be made aware of this. A curriculum functions at its best when the teachers imbibe its spirit and work on it. The curriculum that we design now is not meant for the teachers who either impart knowledge as a finished product or leave the task of knowledge construction entirely to the students and stay away completely. Instead, we need teachers who are social engineers who set the learning issues in the right direction, by continuously inspiring the learners, asking questions and providing hints and explanations.

3.4 The Right to Education

Every child has a right to quality education. There should be no discrimination in terms of economic, social, linguistic or gender-specific status that prevents the child from gaining access to education. The limited facilities that are available should not prevent the learner

from getting access to quality education. The argument that facilities and opportunities that make learning easy must be provided at school has relevance in this context. The added facilities and learning time that are extended to the learner at school should be seen as an initiative for justice towards the poor and needy. Likewise, physical challenges should not act as a hindrance to the child in utilizing the facilities at school. To overcome the physical challenges, appropriate material support may be provided. The school must cater to the needs of such learners. Inclusive education should be given maximum priority. Girls need to get more opportunities at school just as they do at home and in the society around them. The marginalized sections of the society should be given education that helps them conserve their cultural identity and linguistic originality. Curriculum should be flexible enough to accommodate these aspects.



4

THE STAGES OF SCHOOLING

The structure of general education in Kerala spreads from pre-primary to higher secondary. The various stages such as pre-school, primary, secondary and higher secondary function as separate entities today. They ought to become complementary to each other. Efforts are needed to maintain the continuity and complimentary nature of these stages.

4.1 Pre-School Education

At present, pre-school education is not a part of formal system of education. Pre-school education in the state, in general, is in the form of *anganwadis* which mainly focus on nutrition and child care. These institutions function primarily in rural areas. The general education stream begins with the lower primary and ends at the higher secondary level. This should provide the learners the opportunity to develop the abilities, skills and vocational experience that help them to interact creatively with the society. Primary, secondary and higher secondary stages must be conceived to facilitate this. As a system that provides for school readiness in learners, pre-school must be unified and universalised.

4.1.1 The need

In a person's life, the first five years are decisive as this period is the foundation

for development of one's personality. Each experience that the child is exposed to during this period results in the development of millions of neurons in his/her brain. There, the building of complex relations also takes place. This is the period that helps in the physical, emotional, cognitive and social development of the child. The educational experience that is provided during this period forms the basis of all the fields that he/she engages in later life.

This is made possible by combining the inborn abilities and acquired experiences of the child. This process starts at the time of birth itself. Family background has a great role to play in this. The factor that has the strongest positive impact is a healthy and friendly atmosphere in the family. The deterioration of the joint family system and the rapid rise of middle class tendencies reduced the possibilities of a child-friendly atmosphere at home that helps in the natural development of the child's personality. One can easily come across many a family where the parents leave their infants at day-care centres as they do not find time to spare for the child due to their busy work schedule. The transition from joint family system to nuclear family system forces the children to switch to formal education at an early stage. At this stage, pre-schools must function as

centres of child care where such care is provided scientifically. They should also prepare the children to get into the general education stream.

4.1.2 The Present Perspective

Educationists like Comenius and Rousseau had realised the importance of child education. Froebel and Montessori developed the idea of 'Kindergarten' and 'Children's Abode'. Theorists like Jean Piaget, Bruner and Vygotsky, while highlighting the importance of Cognitivism put forward perspectives on learning. The key features are :

- by nature children are active and inclined towards learning
- natural and effective learning takes place while they play
- control imposed by elders curtail the natural tendency to learn
- both at school and at home, the child needs to get exposed to collective experiences
- pre-schools are to be designed according to the needs and interests of children
- the child ought to get ample opportunity to gather experiences through his/her own culture and mother tongue
- no effort should be taken to impart any kind of knowledge that would be difficult for the child to actualise mechanically

The pre-school system prevailing in Kerala is based on these features. But, the prevailing system follows multiple approaches varying in

perspectives. We should be able to unify all these and provide a uniform pre-school system, thereby making it a part of general education. However, this should not be a process that facilitates primary stage curriculum at pre-school level.

It is accepted that children have a natural tendency to acquire the knowledge and the ability to understand the world from their immediate surroundings. Children's interest, preferences and experiences assume primacy in early childhood education. An atmosphere that is replete with love, care and inspiration and abounding in opportunities that enhance the quest for knowledge and experimentation will make the children capable of doing things. Preschool is not a centre that promotes reading and writing. It should not create any effort that insists on teaching foreign languages such as English either. Mother tongue forms the medium of learning in these schools. In short, pre-schools should not

Gandhiji on the education of children

'The education of a child should start from the womb. It should start with the education of the mother.'

'As far as a child is concerned there is no difference between activity and play. A child sees everything as play.'

'The first lesson of a child should be about cleanliness. Care should also be taken to improve his/her pronunciation. History and Geography can be combined in the form of stories. One should not make a child write letters. But he/she can be encouraged to draw geometrical figures. Physical development should be ensured through activities like running and jumping.'

"A teacher should be like a mother. It would be better if mothers take up this task themselves."

function as training centres to gain entry to primary schools.

4.2 Primary Education

Children in Kerala are brought up in a socio-cultural setting that is quite different from those in other states. Most of the students who enrol in primary schools undergo pre-school education. With the background of socialisation gained through group activities - playing, singing and dancing together - they enter primary classes. They are familiar with the informal way of learning. Their parents must have completed at least one stage of formal education at some point in their lives and may show keen interest in getting their children educated. Prevailing conditions like geographical diversity, variety of vegetation, climatic conditions and water resources are rich natural sources for learning. The importance attached to health care and hygiene is quite visible, in the society. Our approach to primary education, in this context should be dynamic and creative. It implies :

- flexible curriculum
- the child who grows by interacting with his/her surroundings should get ample opportunity empower him/herself in the ensuing period of learning
- effective engagement of social atmosphere for strengthening the process of learning
- The range of knowledge that the child acquires should go beyond the boundaries of textbook

4.2.1 The rights of the learner

- A learning atmosphere that nurtures

the physical, emotional, social and creative development of the child should be provided. Learning is not mere gathering of information. Primary education must find space for activities that ensure social interaction.

- The need for designing an education that treats the child as an individual at the beginning of primary stage is the felt need today. Scope for creativity in all subjects and opportunity for self-expression are crucial in this context. The variety in abilities should be recognised.
- The rights of the child to enjoy his/her leisure time by engaging in activities of entertainment should not be lost sight of. Engaging in various modes of entertainment is learning and provides for psychological development of the child. A close relation between mental health and entertainment exists and it needs to be strengthened.
- Primary education should be provided in an informal setting, where every child should experience the warmth of love. Child-friendly school atmosphere is the key to this.

We need a curriculum that recognises the child's nature. Quite often we see its dilution at the stage of implementation. When the child is permitted to do art work, or given tools for experimentation or toys or musical instruments, there forms an atmosphere that encourages curiosity and creativity. A process of education that focuses on the creative nature of the child is expected from a teacher who follows a democratic approach.

The child should be able to integrate the knowledge that he/she gains from life situations with that of the knowledge that he/she learns from school. It enables to look at a theme from different angles and to develop one's own perspectives. Such an approach makes knowledge comprehensive. During the construction of knowledge, this approach strengthens the relations among the various elements of knowledge. The learner gets to know himself/herself and his/her surroundings. He/she should be able to envision the development of the themes. For instance, the theme - 'food' can be developed in an inter connected way such as types of food, collection of food materials, preparation of food, scarcity of food, food habit, nutrition provided at school, food during festivals, myths, proverbs and stories connected to food, buying and selling of food items, its preservation, expenditure on food etc. This will pave the way for connecting knowledge to life. The subjects that he/she learns should be viewed as a means for such a learning.

- By the end of the upper primary stage the child ought to be capable of analysing and understanding the social life in his/her locality. He/she should gather a comprehensive idea about the administrative system, democracy, organizational activities, folk traditions, cultural activities, service sector, physical environment, geographical characteristics, soil variety, methods of agriculture, employment, issues concerning development, bio-diversity and the lives and challenges faced by the marginalised. The learners should approach all these in a critical manner. The curriculum should be

designed based on the connectivity between knowledge and society. It means construction of knowledge should help in seeing such a connectivity.

4.2.2 The method of learning

A curriculum that favours construction of knowledge becomes the focus today. At the primary level stress is placed on direct experience. He/she should analyse his/her learning experiences and arrive at certain conclusions. When there is scope to provide direct experience, descriptive approach or a visual presentation using technology need not be attempted. The experience provided should give importance to sensory perceptions and co-operative learning. Teachers are part of the learning process and this process should be enriched with creative activities including games. Each learning instance should have space for values and attitudes. The learner must be enabled to interact with everyone in a democratic manner without any kind of discrimination. Right from the lower classes all the learning activities must focus on developing the inquisitiveness of the learner. Experiences and observations of the adult should be appropriately blended with the observations of the child who is engaged in investigative learning.

At the upper primary level, children attain the capabilities to seek knowledge from different sources. Schools should nurture and provide a democratic atmosphere for pursuing all activities. A collaborative way of learning will make differently - abled children more confident. Opportunities must be provided for learners to interact on the

social issues for developing their horizon of knowledge and social skills. The right of the learners to question inequality and injustice that exist in society must be recognized. They need to be exposed to various methods of learning that develop a critical conscience. It is desirable to present the same idea in multiple ways to help the learners of different ability levels. A collaborative way of learning will make them more confident.

When such formulations on learning are effected in the school system, the community should be informed. Teachers should understand the rationale of such a learning approach and interact with the parents on the rationale. Constructive discussion in our society on the active involvement of children from all sections of the society in the educational process is an essentiality.

4.3 Secondary Level

In a broader sense, secondary education covers classes from the VIII to the XII. But in practice, classes from the VIII to the X are part of the secondary level of education and classes XI and XII are part of higher secondary. All the children who complete primary education are given admission to the secondary level. Those who wish to do higher secondary education have the chance to pursue it.

When we discuss the secondary stage, the age-level of the learners assumes meaning. At this stage learners are teenagers. The emotional and physical features of the learners have wider implications while designing the curriculum. We must create in them:

- awareness about the physical changes they undergo

- inclination for high imagination
- readiness to engage in activities that require leadership
- inclination towards group learning
- commitment to principles
- tendency to establish one's individuality
- awareness regarding gender sensitivity
- the ability to imbibe and engage in abstract ideas
- willingness to engage in adventurous activities

The curriculum at this stage should consider these aspects. It should also create awareness in the learners on the various branches of knowledge and the possibilities.

At present, children are introduced to subject specific learning in standard VIII. At this stage the activity-based approach rooted on concepts and principles becomes the mode of learning. This is the stage where the learner makes conscious effort to enquire and understand the various forces that operate in the society. They try to learn different ideas and theories at this stage. Emphasis is laid on learning mother tongue and other languages, developing linguistic components and strengthening one's own language competence. This is the stage where the learner is able to express his/her ideas, construct knowledge and acquire the skill to use language effectively. The aim and duration of language learning at this level need to be defined more scientifically. The study of core subjects at this stage gains more depth and range, and at times creates

difficulty for the learners. At present, Science and Mathematics equip the learner for higher studies. In the case of science, there is a clear distinction between Physics, Chemistry and Biology from IX standard onwards. Secondary education in Kerala is universal and it covers learners of all sections of the society. This phase ought to create awareness in the learners regarding all fields of knowledge and to acquaint themselves with the resources available in each. The activities must lead the children to recognize their abilities and identify the vocation that they should get engaged in, in future.

We must foresee all these while designing the transactional strategy and context of the core subjects at the secondary level. We should also examine if the learning of the core subjects could be divided into the general level and the specialised level from class IX onwards. The general level must open up the possibilities of different branches of knowledge for learners of all sections of society. The learners must be enabled to select their own respective field of interest. At the same time, the specialized level ought to provide an opportunity for those learners who identify certain areas of interest like Mathematics or Social Sciences and show readiness to master them to go further in these subjects. All the learners are familiarized with the general level of core subjects while they get a deeper knowledge of the specialized subject they have chosen. The learner should have the freedom to select art, work experience or sports as the specialised subject of his/her choice. But the specialisation in a subject should not hinder the higher studies of a student after his/her secondary education. The

division of subjects should be done in such a way that a learner who recognises that he/she has made a mistake in the choice made first, should have the freedom to choose another field that may attract him/her and take up that subject without any difficulty. There should be a detailed discussion on how this possibility could be ensured to see that the freedom and choice of the learner is no way curtailed. The learners should be able to decide their paths for themselves. But the secondary level, which is the critical phase in general education should not form the platform for any kind of discrimination. This should provide for changing the prevailing system of dividing students into the general stream and the technical stream.

4.4 Higher Secondary Level

The Higher Secondary level is the terminal stage of general education. Education at this level should be diversified so as to form a foundation for those who go for higher studies and those who opt for employment. We must retain the students who are forced to discontinue their studies at the completion of class X by providing them opportunities to join higher secondary courses. They should have options for gaining vocational skills that would enable them to contribute to the society. It is not desirable in a progressive society to have a section of students as unskilled and unemployed after the completion of conventional higher secondary courses. Further, a situation wherein students are denied the opportunity for higher studies because of social and economic reasons, is also not desirable. The learners who complete general education should possess the competency to enter the

employment sector directly. Those who wish to pursue their studies further should not be denied of the opportunity. They should have opportunities either to work while studying or enter jobs for a certain period and join higher studies later on. For this, the present division of courses into higher secondary and vocational higher secondary streams should be done away with. Instead, the higher secondary stage of general education should provide opportunity and freedom for the learners to select subject combinations that have both vocational and academic components.

The National Curriculum Framework opines thus in this regard:

The possibilities of choosing optional courses of study for exploring and understanding different areas of knowledge, both in relation to one's interest and one's future career, is integral to this stage. Exploring disciplines and approaching problems and issues from rich interdisciplinary perspectives are possible at this stage. There is a need to allow for such investigations to take place between and outside the 'subjects' chosen for study.

Most boards of study offer a variety of subject areas in addition to the compulsory language courses. There is a concern about the formal or informal restrictions that operate to narrow the choice of subjects of study for students. Several boards restrict the combinations in the form of 'the science stream', 'the arts stream' and 'the commerce stream'. The CBSE does not restrict the possibility of combinations that students can choose, but in view of the increasing popularity of some combinations of subjects of study, and also because of a perception of status of subjects in relation to each other, many such options are now foreclosed to students. Further, universities also need to

review their admission criteria as they currently restrict admission based on the kinds and combinations of courses studied at the +2 stage. As a consequence, many significant and meaningful combinations of study, such as, for example, Physics, Mathematics and Philosophy, or Literature, Biology and History, are closed to students.

Recent trends of school tailoring their classes to medical and engineering courses have led to an artificial restriction on the courses they offer at school, arguably on grounds of popularity and timetabling. In many parts of the county, students who want to study the arts and liberal subjects are left with very few options. Schools also discourage students from opting for unconventional combinations, often on account of timetabling considerations. We believe it is essential to keep all options open for students. In case there are not enough students in a school opting for a particular subject, schools could consider working out arrangements with other schools in the neighbourhood so that they could employ a resource teacher together. Such resource teachers could also be employed at the block level to teach such special subjects that would not otherwise be available in a school. School boards may also consider a more active role in promoting subjects and streams of study.

But the higher secondary education in Kerala maintains a difference in this regard. Our aim is to make this stage of education accessible to everyone. However, we cannot frame the higher secondary curriculum and the subject streams to meet the needs of those who prefer higher studies. The problem of unemployment that the Kerala society faces is mostly among youths in the age group of 18 and 25. It is only when a child who completes his/her higher secondary,

gets equipped to plunge into the field of employment, that we can solve the problem of lack of skilled labourers and unemployment of the educated. We need to reform the higher secondary curriculum to address this concern.

What is desirable at present is a unified higher secondary curriculum. Efforts are needed to break the boundaries of prevailing streams of studies-Science, Humanities and Commerce that are formulated solely for higher studies. The subject combination at higher secondary stage can be Science, Social Sciences, Commerce, Culture and Vocational studies. Each subject combination provides the learner a deep learning experience in three subjects. As the fourth subject, the learner can have a subject of his/her choice. For instance, a student who selects science stream can have History, Dance, Hindi or Music as his/her fourth optional. The number of languages to be taught is to be decided based on the aims of language learning. This should also be based on the available working days and working hours. At present institutions such as Navodaya Vidyalayas, which follow a centralised syllabus, have only English as a compulsory language. Taking into consideration the conditions prevailing in Kerala, there should be opportunity to study languages including the mother tongue. The details of this have to be worked out later through discussions.

The learners who complete their higher secondary course get trained in a

vocation of their choice. For example, a learner who takes up science can study one of the related vocations (Community Medical Service, Lab Technicians, Architecture, Draftsmen, Farming, Dairy, Fisheries etc.) and can gain practical experience and expertise in it. Vocational education must be provided through local centres.

During this period it is advisable for all learners to gain experience as apprentices. For this, job clusters are created at the Block level and quality training centres are recognised and authorised to impart training. Learners will be given opportunity to get trained in vocations that are useful to society such as draftsmen, farmers, dairy farmers, horticulturists, plumbers, architects, electricians, automobile repairers, mechanics, computer hardware technicians, repairers of electronic equipments and mobile phones, lab technicians, community workers, carpenters, hotel managers, caterers, cooks, masons, sculptors etc. at different training centres.

Along with the higher secondary certificate, there will be certification on the skill of the learner in any particular vocation. On completion of higher secondary, those who opt for academic pursuit can continue in their respective discipline while for those who seek job, the certificate will give scope for employment.

There is a need to effect changes in the transactional strategies of subjects in tune with the new curriculum. The nature of content, the method of learning and the role of the teacher should reflect such changes. Let's examine the various ideas that have been formulated in different subjects.

5.1 Language Learning

The formulation of the curriculum framework should seriously consider the relevance of language learning in school education. Modern Linguistics and Psychology underline the possibilities of multilingualism. Language learning helps cognitive development as well as enhancement of logical reasoning. The educational policy of post-independent India is based on three-language formula. It is suggested that in Hindi speaking regions, Hindi, English and one of the South Indian languages are to be taught. In non-Hindi regions, along with regional language, English and Hindi are to be taught. Kerala has effectively implemented the three-language formula. Along with the three-language formula, there is also opportunity in the state to learn Arabic, Sanskrit and Urdu from the primary level itself. This has been of great advantage to the learners of the state.

The importance accorded to literacy in Kerala has become a model to the entire

country. Mass movements like the Library Movement and the Literacy Movement in Kerala could create great impact in the society. These movements paved the way for the awakening and empowerment of the oppressed. Print media exert their increasing influence on the people of the state and this reflects one of the gains of the prevailing language learning environment.

Since 1997 - '98 a total transformation has taken place in content, methodology and evaluation. This has enriched language learning. The process-oriented curriculum creates a conducive atmosphere for the generation of language. This has helped in promoting the creative skills of the learners. A system of examination that tests the language competency and the mental process of the learner has replaced the examination system based on the memory power of the learner. Efforts have been made to design the textbooks into comprehensive units with integrated activities. The new curriculum helped to activate the functioning of school libraries. A number of publications for children have sprung up as a result of the importance given to language learning in the curriculum. There are also efforts to include technology as well in language learning.

5.1.1 Issues

Though the infrastructure has improved considerably, the learning atmosphere in most schools continues to be unattractive. For meaningful language learning, activities that are process-oriented and attractive are indispensable.

The new curriculum of language is based on the principles of Social Constructivism, Linguistics and Neuro-Psychology. But at the level of implementation it has yet to take roots. Inadequate teacher empowerment programmes, absence of monitoring, limitations of awareness programmes and insufficient supporting system add on to the prevailing conditions.

Studies reveal that the existing language textbooks have limitations on the following grounds:

- lack of effort for meaningful use of integrated approach
- loaded content
- less scope for self-learning in the textbooks
- over looking child's perspective in the selection of certain texts

We are yet to overcome problems related to planning of learning activities, strategies for providing proper scaffolding, process of implementation and evaluation process. Time constrain, abundance of activities, activities of the same kind in different subjects, rigid period structure etc. are different set of problems that seek answers. Teachers are yet to be empowered to design activities that suit the needs of multi-level learners. The process of refining learner products have not been done. The learners should get opportunities to examine their

products by themselves and in groups. The problems in sentence structure, the selection of words, the relation between language and expression and related errors made while constructing discourses need to be refined.

Library activity is an essential factor in language learning. Schools where libraries function are neither effectively utilised nor follow a satisfactory lending system.

5.1.2 Language Learning - A General Approach

Let's look at the ideas National Curriculum Framework puts forward regarding language learning.

'It is clear that through their innate language faculty and interaction with the family and other people around them, children come to school with full-blown communicative competence in their language, or, in many cases, languages. They enter the school not only with thousands of words but also with a full control of the rules that govern the complex and rich structure of language at the level of sounds, words, sentences and discourse. A child knows not only how to understand and speak correctly but also appropriately in her language(s). She can modulate her behaviour in terms of person, place and topic. She obviously has the cognitive abilities to abstract extremely complex systems of language-from the flux of sounds. Honing these skills by progressively fostering advanced-level communicative and cognitive abilities in the classroom is the goal of first-language(s) education. From Class III onwards, oracy and literacy will be tools for learning and for developing higher-order communicative skills and critical thinking. At the primary stage, child's languages must be accepted as they are, with no attempt to correct them. By Class IV, if rich and interesting exposure is made available, the child will herself acquire

the standard variety and the rules of correct orthography, but care must be taken to honour and respect the child's home language(s)/mother tongue(s). It should be accepted that errors are a necessary part of the process of learning, and that children will correct themselves only when they are ready to do so. Instead of focusing attention on errors and 'hard spots', it would be much better to spend time providing children comprehensible, interesting and challenging inputs.

It is indeed hard to exaggerate the importance of teaching home languages at school. Though children come equipped with basic interpersonal communicative skills, they need to acquire at school cognitively advanced levels of language proficiency. Basic language skills are adequate for meeting situations that are contextually rich and cognitively undemanding such as peer-group interaction; advanced-level skills are required in situations that are contextually poor and cognitively demanding such as writing an essay on an abstract issue. It is also now well established that higher-level proficiency skills easily transfer from one language to another. It is thus imperative that we do everything we can to strengthen the sustained learning of Indian languages at school.'

(NCF-2005, P-37,38)

Language is not a mere medium of communication. It is also the social and cultural reflection of a society. We express our thoughts and ideas through our language. One also engages in creative activities and enjoys works of art with the help of language. Language is also essential to weave the threads of social life and to understand and analyse the ways of the world. Thus language has had a crucial role in the evolution and development of human kind.

Instead of banking on the behavioural

psychology, the new curriculum aims at utilizing the innate competency of the child to use the language. This method makes use of the child's ability to use the linguistic skills he/she already has and enables him/her to engage in daily activities and express his/her ideas creatively. The experiences gained in learner centric situations in and outside Kerala assume meaning in this context. The idea of Social Constructivism put forward by Vygotsky and Bruner and the findings by Noam Chomsky in Linguistics form the foundation of this curriculum. Besides the ideas emerging from gestalt psychology and humanism also helped in shaping the perspective of language learning.

The method of learning one follows has a crucial role in one's learning. It also helps one to acquire ideas in a natural way. It is a set of competencies that enable an individual to approach knowledge or objects, to collect information and to analyze them.

Competencies like:

- Intervening in group activities*
- Participating in activities*
- Establishing relationship with others*
- Solving problems*

influence one's method of learning

A recognition of the method of learning will help the teachers to choose the responsibilities to be allotted in the process of learning. It will also help the teachers to select the tools that can be used. Teachers should be aware that students have different methods of learning and that the experience of learning should be suited to the individual's unique method.

Activities

The quintessence of learning a language is a method of learning that is co-operative and collaborative. We have to go much further in this field. Teachers are not able to provide the scaffolding necessary for children to acquire new knowledge through group activities. Teachers should be able to convince the students of the need for a participatory method of learning and to create suitable circumstances to encourage this. Models of teaching that inculcate this skill should be developed and these models should be made widely available to teachers.

Multiple intelligence of the learner need to be addressed and experiences in learning has to be provided to the learner in such a way to connect the languages across the curriculum and the subjects with each other. Classes that promote the learning of language in connection with the experience of the content of other subjects should be arranged. This is one way of considering the method of learning of each student.

5.1.3 Whole-Language Approach

The important features of Whole-Language Approach are given below:

- learner autonomy promotes learning. Learning gets maximised when the learners engage in activities. A community of learners who take up activities controlled by themselves is envisioned
 - the innate abilities of the children to grow and learn are taken into account. This ability needs to be nourished
 - learning gets enriched by social interaction. It is advisable to engage the children in discussion, share ideas and act collectively in finding answers to problems
- major part of language learning does not take place as a result of direct teaching. One learns language non consciously by interacting with elders
 - the learner has the ability to acquire even the complex processes and it is essential to provide them opportunities to engage in such processes
 - language has multiple functions in daily life and participation in such functions provides for development of language proficiency
 - language learning progresses from whole to part. It is natural and psychologically meaningful to move from the holistic form of ideas to the elemental form of words

Like the whole-language approach, the theory of Multiple Intelligence is another source of influence in the curriculum reform effort. The theory outlines that the different parts of the brain are related to different abilities of the individual. As brain development takes place at a great pace in early ages, the child needs to get exposed to a variety of experiences. More researches are needed for unfolding the various aspects of Multiple Intelligence.

The new approach recognises the social aspect of learning. The construction of knowledge takes place by means of social interaction and sharing. This is essential to enable the child to understand the world that he/she lives and also to develop the skills essential to react creatively and effectively. Generally, this form of learning seeks dialogical, collaborative and co-operative atmosphere.

5.1.4 Learning materials

Though we recognise the fact that a variety of learning materials, instead of a single textbook is essential for learning language, this has yet become a reality. Organised efforts are needed in this direction. The school and class libraries ought to provide better facilities. If necessary, reading materials have to be developed at the district level or at the local level.

At the State level, we need focus on a common curriculum, a framework for the textbook and teachers' handbook. The textbooks may be prepared at the district level, considering the regional elements. As a first step, this can be initiated at the primary stage.

Movies that would be interesting to children, extracts from newspapers which contain social issues and interactive CDs could be used for language learning. This will be of help in deciding the mode of study of each learner and once the mode of study is identified, learning becomes enjoyable.

5.1.5 The teacher

Our vision of language teachers suggest that they:

- demonstrate keen interest in reading and developing knowledge. They also engage in cultivating reading habits in children
- should be capable of interacting with the learners effectively
- should be capable of clarifying the doubts raised by the learners and kindle the spirit of enquiry in them
- should have the ability to ask thought provoking questions and lead the learners in the process of learning

- should be creative and possess the ability to provide constructive suggestions on the work of the learner
- develop a critical perspective of the world around them and also equip the learners to do the same

Formation of such a community of teachers would result in the creation of a generation that uses language for critical and creative purposes. Keeping this in view, well-conceived teacher empowerment programmes are to be planned and executed covering all the teachers of the state. Evolving a monitoring mechanism for ensuring the quality of curriculum transaction is equally important. A mechanism involving local self-government, education officers, DIETs and BRCs would help in strengthening teacher quality.

5.1.6 Evaluation

We should carry out a comprehensive and continuous evaluation programme in order to assess the level of achievement of the learner and to plan activities on a regular basis. Practical methods that help us to classify every learning activity under specific areas of study should be developed. The evaluation programme should gradually upgrade itself by reducing the importance of terminal examination and by strengthening the continuous evaluation process.

5.1.7 Learning the mother tongue

During the phase of language acquisition mother tongue gets strongly rooted in the learner's mind. It is the best medium for the learner to express his/her emotions and ideas. Mother tongue can be made use of for a variety of purposes in the

school curriculum. It provides enabling conditions for the construction of knowledge.

Our curriculum provides space for the study of different Indian languages and foreign languages as well. It gives an opportunity for the learners to interact with different streams of culture as they learn different languages. This is helpful to attain excellence in different fields of life. But, at the same time, we have not been able to make the study of mother tongue comprehensive and mandatory to all. The prevailing complacency has affected the study of mother tongue adversely. We are quite late in realising the negative impact of overlooking the importance of mother tongue. In other states of India, while learning of mother tongue is mandatory in Kerala, one can complete school education without learning mother tongue. The study of any subject is done basically through language. It becomes meaningful if it is done through mother tongue. The learners must be given the opportunity to learn their mother tongue in all stages of schooling. Learning mother tongue needs to be viewed as the learners' right.

At the primary stage focus should be placed on language learning. An integrated approach that is flexible in nature can help us in accomplishing this. For instance, Mathematics or studies on the environment can be studied through integrated approach.

Language learning at the primary level should be based on the experience of the child. He/she should learn the language by reacting to his/her surroundings and by analyzing them in an imaginative manner. There is a need to create familiar

The baby takes its first lesson from its mother. I, therefore, regard it as a sin against the motherland to inflict upon her children a tongue other than their mother's for their mental development.

Gandhiji

situations for engaging the learner in different language discourses. We should also create an atmosphere that helps each learner develop a genuine inclination for language.

In general, three language formula is followed from classes V to X. But in Kerala, there is an opportunity to learn four languages. Along with the mother tongue, English, Hindi and opportunity to learn Arabic/ Sanskrit/Urdu is provided. Those who opt languages other than mother tongue should have scope for gaining proficiency in mother tongue.

At the higher secondary level, more language combinations should be framed. Here, opportunity should be created to learn different languages by relating them to art, culture, technology and commerce. Learning methodology could be arranged in such a way as to initiate the inquisitiveness of the learner regarding the possibilities of language. The benefits of Applied Linguistics must be made use of. An integrated mode of teaching subjects like Ayurveda with languages is advisable.

5.1.8 The medium of instruction

In a multilingual society, the medium of instruction is an area of concern. There is a general belief that English should be the medium of instruction at schools as higher education is in English. But every democratic society recognises the

relevance of mother tongue as medium of instruction. Beyond the role of mere communication, language reflects the culture and heritage of a society. It is also the medium of thought. This realisation forms the basis for recognising mother tongue as medium of instruction.

Further, research in psychology has underlined the fact that individuals have much to gain if they learn an idea in mother tongue. Learning languages other than mother tongue becomes strenuous. Processes like concept attainment and construction of knowledge take place meaningfully and effortlessly through mother tongue. Construction of knowledge does not mean a mere gathering of information. It is an internal biological process. The development of neurons and the establishment of their inter-relativity results in learning. Every experience creates a web of neurons and the new web of neurons forms over the existing web. This process provides for cognitive development. The process of cognitive development becomes natural and effortless if the process of learning is set through mother tongue.

Theorists like Piaget, Vygotsky and Chomsky have made observations on the link between thought process and linguistic ability. Vygotsky opines that language is the tool for the execution of thought. When thought and language commingle, linguistic development takes place.

Psychologists like Bruner points out that education leads to the process of identity learning. Learning an idea in a foreign language as the medium hampers the identity learning process.

In the document titled 'Education in the

Multilingual World', UNESCO states that keeping a language away in the process of education would lead to its death. In the international pact that was drawn on linguistic rights it is stated that:

- everyone has a right to be educated in one's mother tongue
- at the national level, language of the linguistic majority has a space
- there should be scope for learning diverse cultures so as to develop positive attitude towards minorities, regional languages and sub-cultures
- there should be opportunities for learning international languages

Today, Kerala has schools with Malayalam as well as English as medium of instruction. Privatization and the growing competition that take place in the field of education promote English medium schools. This tendency can be seen in the middle and upper strata of the society. The National Curriculum Framework points out that there is a deterioration of values among learners of such elite schools. This can be attributed to the medium of instruction followed in these schools. A language that does not assimilate the thoughts and ideas of learners of Kerala society cannot facilitate well their cognitive development.

We should avoid abstract experience that fails to communicate with the learners. Language used in textbooks should be comprehensible.

The importance accorded to the standard variety of language affects the mother tongue adversely. The domestic language and the dialectical variant of the mother tongue used by the child should be recognised. Language should not be a

stumbling block in the construction of knowledge and self-expression.

5.1.9 Learning English

Language learning has great importance in empowering the individual. As a universal language, English has been given due importance in the curriculum. In Kerala, learning of English language begins at class I. At the higher secondary level, English is taught as the First Language.

The present learning materials and pedagogic practices do not consider the innate linguistic ability and thought process of the learner. The inherent limitations of language-learning packages based on behaviouristic ideas have been realised recently. Yet, this aspect is not considered in our discussions on language teaching.

It is in this situation that we need to analyse the real issues embedded in the learning of English rather than trying to switch over the medium to English. Ensuring quality in the process of learning English assumes primacy in this context.

We must provide essential conditions for the acquisition of language in a natural manner. The basic premises are:

- there is an innate linguistic ability in children
- language learning is a non-conscious process
- language-learning takes place by developing an intuitive theory construction in the learner
- language ability is the development of an inner competence to make use of all language skills
- language learning is a spiral process
- language learning takes place from whole to part
- texts that generate organic experience must be provided to the child to help him/her traverse through a variety of discourse forms
- the language used should influence the emotional orbit of the learner
- the quality of the language used matters more than its quantity
- language exists as meaningful discourses and the child gains experiences at the discourse level
- free thinking and the expression of ideas need to be stressed at all levels

5.1.9.1 The Primary level

- integrated approach is significant at this level
- simple discourses such as conversation, rhymes and story need to be focused
- it is desirable to introduce children to writing at class II
- English language learning could be started in standard I without making it a burden for the child
- code Switching will be an effective strategy at the lower levels in order to make the students imbibe discourse forms in language
- avoid written examinations at the Lower Primary level
- at the Upper Primary level, comparatively higher discourses like story, poem, conversation, proverb, notice, letter, poster, report and diary could be included

5.1.9.2 The Secondary level

- at this stage, discourse forms like one act play, autobiography, travelogue, screenplay and biography could be attempted, apart from the ones envisioned in the upper primary level

5.1.9.3 The Higher Secondary level

- at this stage higher order discourses like novel, essay, screenplay, script and seminar could be included along with the discourses that are included at the secondary level
- the learner has to be given opportunities to realise the possibilities of these discourses in the visual and print media
- critical analysis of texts to realise how semiotics work in manufacturing consent is relevant at this level
- at present, Communicative English and English Literature are part of the higher secondary syllabus. The communicative aspect of any language is an essentiality and as such both need not be seen as separate entities

5.1.10 Hindi

Hindi deserves to be given more importance as it is the official language of India. We must equip the learner to develop communication skills in Hindi that could be of use in real life situations. The system of learning must stress upon conversation, reading and writing. It is from the fifth standard that the learners are introduced to Hindi. We must develop in the learner:

- the ability to use various discourse forms in a confident manner

- the skill to read and comprehend literary forms
- the readiness to engage in conversation
- the ability to respond in the target language spontaneously

5.1.10.1 Higher Secondary

- opportunity should be made to choose Hindi from among different languages
- learning experiences should be designed to develop ability to communicate effectively. This should take into account the formal and informal use of language.
- learners need to be familiarised with Hindi literature
- Hindi language and literature could be made an optional subject at this level

5.1.11 Arabic

Arabic could be taught from the first standard itself for those who opt it. The learners who choose Arabic should develop the skill in communicating in Arabic by the time they reach the secondary level. The cultural aspect of Arabic need to be meaningfully addressed.

At the higher secondary level Arabic could be considered as an optional second language. It could also be an optional subject of study.

5.1.12 Sanskrit

Learners who opt Sanskrit could be given the opportunity to learn it from the fifth standard onwards. At the secondary level stress must be placed on learning the language as well as its cultural aspects.

At the higher secondary level, it could be taught as an optional second language and also as an optional subject. Literature and culture must be given prominence at this level.

5.1.13 Urdu

Those who opt for Urdu can learn it from the fifth standard onwards. At the secondary level, more stress must be laid on learning the language as well as its cultural aspects.

At the higher secondary level, it could be taught as an optional second language and also as an optional subject. Learning literature and culture must be given prominence at this level.

5.1.14 Foreign Languages

Learners who wish to study a foreign language should have the freedom to study it at the Higher secondary level. Necessary arrangements could be made according to the availability of teachers. It is not advisable to let students choose a language even if no teacher is available to teach that language. The learning process must be based on discourse forms. Proper exposure should be provided to learn the literature of the chosen language.

5.2 Learning Science

During the primitive period of life, human beings explored the world around them through physical interactions, using sensory organs and intellect. They observed their surroundings and analysed what they perceived. Physical, intellectual and social interactions with nature helped them to generate knowledge and appropriate tools as well. Later, the knowledge and tools thus

constructed socially is termed Science and its applications, technology. These developments helped in the survival of human beings. It is the responsibility of the society to hand over the knowledge and tools thus generated to the next generation.

While handing over the wealth of science to the next generation, it is important that the following ideas are considered:

- science cannot be viewed as a finished product. Knowledge is constructed through experience. The process-oriented method of learning helps the learner construct new forms of knowledge
- concepts and ideas in science that the learner constructs should have linkage with real life situations
- considering the nature of content, science is organised in terms of Physics, Chemistry and Biology. This form of organisation does not help in understanding how things exist or events occur in the universe. It fails to provide a comprehensive understanding of how science is integrally linked to different spheres of life. What we need in this context is an integrated idea of science. It is desirable to branch of Science as different subjects for in-depth study at higher levels
- the prevailing dichotomy of theory and practice needs to be replaced by creating opportunity to form theory based on practical experience
- every society has its own traditional form of knowledge. Such knowledge needs to be analysed scientifically and what is acceptable should be interrelated with the realm of modern science

- the society in which the learner lives is full of contradictions and discriminations based on gender, wealth and cultural experiences. This may influence the treatment of concepts in science curriculum to suit the privileged class. It is essential in this context to view science as a tool for liberation. The study of science in a competitive society should enable the learner to realize his/her identity and take a firm stand on what is right
- knowledge is dynamic. It does not provide a final answer. The history of science and evolution of knowledge prove this. This very nature of science needs to be realized by the learner
- science should not become a tool for creating imbalances in nature. It should be used based on social and

environmental values and for the welfare of the society. Science education should aim at equipping the learner against the misuse of science

5.2.1 Background

Science Education in Kerala and in the country is facing myriad challenges. Perhaps it is an area that has been widely criticized for its content and pedagogic treatment. The criticism, to a certain extent, appears justified as we are not able to devise a suitable approach for the learning of science and to accommodate latest development and trends in the field. The experiments that are given in the prevailing textbooks are not indented to make the learner discover facts and they also limit the scope for enquiry. The relevance of doing experiments and observations is either lost or undermined

Awareness of Science

It is hard to provide a universal definition for the term awareness of Science. It could be referred to as an attitude that we develop while approaching an issue. The thought process that is involved is also important. Such awareness if based upon the spirit of enquiry, the readiness to question and the willingness to be questioned. It accounts for:

- the ability to observe things in a minute and perfect manner without prejudice
- the skill to measure and document a piece of sample information
- the ability to analyze and interpret data
- the skill to arrive at certain conclusions according to the data collected
- approval of the right to question and to be questioned
- insistence on decision-making according to the evidence gathered
- the readiness to re-examine the conclusion that is made, in the light of new evidence that is gathered
- the ability to identify what is unscientific
- broadmindedness
- a respect for the right of others to take a different stance
- the commitment towards logical reasoning and factual enquiry
- awareness of the possibilities and limitations of science

by the practice of giving in the textbook all the details that are to be explored. This, in turn, curtails genuine interest of the learner and the scope for enquiry. Life around us is more complex and different than what we see in our textbooks. In fact, science education does not help in fostering the competency for analysing and discussing possibilities for solving problems that the individual and the society face. It also fails in creating even the right attitude that is required for solving a problem. There is no scope for developing scientific awareness. Science fails to become an enabling area of study if the learner does not get access to the process of learning science such as observation, data collection, data analysis, arriving at conclusions etc. A learner, like a scientist, should get opportunities to engage in different projects and to be familiarized with the process of scientific enquiry.

5.2.2 Major criticisms

The major criticisms levelled against the prevailing science education may include:

- there is a notion that the aim of science education is to transmit knowledge that has already been gathered
- the learning process is neither process-oriented nor learner-centred, thus the learners do not have the opportunity to engage in learning activities and construct knowledge
- there is a tendency to promote rote-learning of concepts in science to excel in examination
- the innate curiosity and scientific

temperament of the learner are yet to find space

- examination centric textbooks and learning process
- incongruence between the content, and the level of the learner
- scientific temperament and science literacy are not addressed adequately
- learning of science fails to become interesting and challenging to the learner
- construction of knowledge has not been duly recognised
- science education has yet to become life related
- mechanisms for empowering learners in the pedagogic practices are yet to be strengthened
- the assessment of effectiveness of teaching science is completely neglected

5.2.3 What the Society Demands

While deciding curriculum approach, teaching learning process and content, it is essential to keep in mind long-term as well as short term needs of the society. We have to aim at creating a generation that can construct knowledge and resolve issues in the fields of agriculture, industry, health, communication, information technology etc. Keeping in view the concept of sustainable development of Kerala society we have to make new strides in production sector by linking the resources and the human capability available in our society. In this context the following need to be considered:

- emerging opportunities in

employment sector need to be utilised to the maximum

- locally viable technology needs to be developed
- scientific vision of the universe, scientific method of enquiry, awareness of the environment, concept of sustainable development, value consciousness etc. are to become an integral part of the civil society
- process skills are equally important as the content
- inter-disciplinary approach is gaining ground today in the field of science including research

5.2.4 Aims

By the time the learner of today gets involved in the process of production in the society, the nature and the needs of the society would have changed considerably. Besides, the changes occur at a rapid pace and Science and Technology would continue to occupy a central position in becoming the inspiration behind such changes. Every student should ideally have imbibed a scientific literacy, that would consist of an awareness of scientific ideas and scientific methods that will enable him/her to intervene effectively in such a society with self-confidence and to contribute towards its progress. The main aim of science education is to equip a student with a scientific mind which will enable him/her to deal with the problems logically and to take decisions. Along with these, it is necessary to take into account the interests and aptitudes of the learners while designing the curriculum.

Thus, the aims of science education include:

- development of scientific temperament and its application in daily life
- engagement in scientific methods like observation, experimentation, data collection, interpretation of data, analysis, theorising, examining for construction of knowledge
- nurturing the ability to examine scientifically the problems of daily life as well as social issues and seeking logical solutions
- recognising and developing one's own interests and abilities in technical and vocational fields
- encouraging the development of logical thinking
- imbibing a humanistic outlook and developing a world view based on it
- recognising the importance of understanding historical development of ideas
- nurturing lateral thinking ability for enabling the learners to look at things from different perspectives and to seek new solutions
- developing scientific literacy that provides for building awareness of scientific process

5.2.5 Changing Approaches

The approach of science education has to be changed to achieve the aims stated above. The conventional notion on science education that transferring accumulated knowledge about the universe has been changed almost four decades ago. After this, the idea that process of learning

science is as important as the content of science came to the fore. But now prominence is given to the view that there are other areas to be considered apart from process and content. They are:

5.2.5.1 Knowledge Domain

Every student of science ought to be aware of the latest theories and developments in the field of science. This accounts for facts, ideas, laws, the present status of learning and the correlation of science and social issues. These could be accomplished by observation and experiment, discussion, debate, project work and reference.

5.2.5.2 Science Process Domain

This area helps to understand how scientists construct knowledge and how the learner can do it by himself/herself. A process could be defined as a series of steps that aim at a particular result. The ability to identify new ideas and analyze them to reach a conclusion is termed as process skills. Process skills are developed by collecting ideas and proof and by arriving at conclusions after deeper analysis.

Concept formation is an essential part of any kind of study. One can distinguish a 'being' which one has not seen before as a 'living being' as one has attained a concept of what a 'living being' is. When a particular matter gets disappeared in water, a learner realises it as dissolved in water as the concept of dissolving is imbibed by him/her. But, in order to internalize an idea, the learner has to go through a series of learning process. The idea that the learner forms through observation and experimentation is his/her own. There are certain process skills

that the learner ought to possess in order to engage in scientific study. They are:

- observation
- data collection and documentation
- classification
- measurement and charting
- data analysis
- engaging in experiments
- identifying variables
- questioning
- generalisation
- problem solving
- arriving at a hypothesis
- decision-making
- communication
- predicting and inferring
- handling tools

5.2.5.3 Creativity Domain

Science education is now viewed upon as the process that helps the learner gather information about some aspects of science. This perspective overlooks the creative thinking of the learner. The learner should be given chances to explore new paths in the acquisition of scientific knowledge. The learner should:

- develop the potential for visualization
- develop the skill to design an experiment
- correlate ideas and facts in a new manner
- find an alternative utility for materials
- find answers for problems and puzzles
- start fantasizing
- design tools and equipment
- start dreaming
- think differently

5.2.5.4 Attitudinal Domain

The essential aim of science education is to create a change in attitude and develop new ideas regarding values. Even after acquiring new ideas and process skills, if there is no change in the learner's attitude towards the society, science education will have no practical meaning. Even the ones who have reached higher levels of science education are seen to be making unscientific decisions in life. Science education should try to bring in a change in aspects like attitude, values and decision-making. Therefore, science education has to take into consideration these aspects as well:

- the learner ought to develop an inclination towards scientific knowledge and science education
- he/she should develop faith in one's ability
- he/she ought to understand and value human emotions
- he/she ought to be sympathetic to the others and their attitude

5.2.5.5 Application Domain

If the learner is not able to apply the knowledge that he/she has gathered, there is no meaning in imparting science education. If the practical level of science education could not be related to life, the learner will not find it to be of any significance.

The elements of Application Domain are:

- observing science concepts in daily life
- making use of the concepts and skills that are imbibed for solving issues related to technology
- forming ideas about the scientific principles behind the working of

tools and equipment used at home

- making use of the process of science to solve the issues in daily life
- developing ability to evaluate the events related to science
- taking scientific decisions in matters of food, health and life style
- developing an inter-disciplinary approach

5.2.6 The Importance of Scientific Enquiry

The pivot of science education should be the development of the spirit of scientific enquiry. With the help of science education, all learners should acquire skills like investigating, planning and execution of experimental study and identification of the tools and equipment to be used and data collection. There should be a spirit of enquiry in the learners to understand the research methodology of scientists and construct new forms of knowledge.

5.2.7 Learning Methodology

When there is a change in the attitude towards the skills that are to be inculcated in science education, there will be a change in the learning methodology as well. Science learning is something that students do, not something that is done to them. Science education should be an active learning process. We should remember that it is not only manual activities that can be creative, even mental activities too can be creative.

5.2.8 Activity-Based

It is not a point of debate that learning is activity-based. What we hear, we forget. We may remember what we see. But when we do something, we understand

it fully. But there is every chance to conclude that activities like playing, songs, dramatisation, experiments in which the learners physical participation is needed alone can be termed as activities. The problem of such an attitude is that activities are taken up for the sake of activities. Learners may derive pleasure out of it but there is no assurance that to has taken place.

A good learning activity has to:

- help in forming concepts and developing skills
- ensure participation of all
- motivate the cognitive development of the child
- be planned in advance so that the learner must feel it enjoyable and challenging
- be suitable to the age and nature of the learner

In science education due focus needs to be given not only to content and process but to the different areas discussed above as well. The teaching learning strategies for this need to be discussed further.

5.2.9 Construction of Knowledge

All the new schools of thought give equal importance to knowledge, process skills, thinking skills and attitudinal-creative-application domains in the process of learning. This is a general idea that has been accepted by the modern constructivist school. Human beings are not passive recipients of knowledge; they are the constructors of knowledge. Learning takes place in a social setting. Real learning does not take place by a mere gathering of information, it is done only by looking at the piece of

information through the right perspective and by analysing and interpreting it.

5.2.10 Connecting to Previous Knowledge

Social constructivism aims at the reorganisation of knowledge already acquired by the learner. This has great relevance in science education. Studies reveal that the learner's mind is not empty regarding scientific knowledge; he/she has certain ideas and opinions about clouds, gases, motion, living beings and changes that are perceived in the world. It is quite natural that children possess a basic idea about the aspects of nature just like adults. These notions may differ from those of the scientists and need not subscribe to reality.

The traditional pedagogy was not concerned about the previous knowledge or thought process of the learner. Therefore, the teacher-centred pedagogical system had no intention of changing this situation. However, studies conducted in the last decades have shown that the amount of previous knowledge that the learner possesses could be creatively influenced by the constructivist idea of teaching.

There are children who believe that a particular form of energy emitted by the eye falls on the objects and that helps us see them. We can also find learners who believe that solids and water are consumed as food by plants. Such wrong notions are the basis of their science education. These ideas, wrong in themselves, should provide a platform to analyse one's ideas by experimentation and observation and to lead one to a correct conclusion. If this process does not take place, the learner would have the

tendency to maintain the traditional outlook on the different aspects of nature. Therefore, it is the duty of educators to lead the child to unlearn wrong notions. The learner should be enabled to relate his/her new experiences and ideas with the previous knowledge he/she has acquired and examine them with the help of the teachers and apply the newly constructed knowledge in a practical situation.

5.2.11 Co-operative Learning

Co-operative learning is an effective learning method in science education. Though this is another version of collaborative learning, we must bear in mind the fact that it is best executed in smaller groups.

There can be three methods for Science Learning:

1. Individual learning: Every student fixes a specific aim and works towards the achievement of it.
2. Competitive learning: Students compete with each other and learn.
3. Co-operative learning: Students co-operate and work towards the achievement of a common goal.

The traditional classroom was characterized by the first two types of learning. But, the third method is found to be more effective. This method helps the learners to develop a creative attitude towards others and the field of study itself. Certain points have to be borne in mind while executing this in the classroom:

- a heterogeneous group will be of help
- each member should be given a

specific task. If not, there is every chance for some of the group members to dominate and for some others to remain inert

- the involvement of each group member should be evaluated
- an effective monitoring system should be in place

5.2.12 Team Teaching

It is proven fact that the collective efforts of teachers is highly effective not only in planning teaching-learning activities but in actual classroom teaching as well. When a group of students engage in an experiment, the presence of two or more teachers will be of great help. Teacher competence alone need not ensure teacher effectiveness. For this, innovative techniques like team teaching should be taken up by teachers.

5.2.13 The Nature of Science and Science Education

By interacting with the society, a child develops a variety of notions about the nature of science. The supremacy of science and the perfection of scientific theories form a part of this. The personal experience of the learner through suitable learning activities provides him/her proper awareness on this. A mere learning of scientific ideas and theories will not enable the learner to understand the nature of science. Acquisition of scientific ideas will not, by themselves, develop a scientific perspective. Experiences that facilitate this should be provided to the learner right from the beginning of his/her schooling.

At the beginning stage, the student should go through concrete experiences

that help him/her get acquainted with various aspects of nature. This does not mean that the curriculum should avoid abstract ideas. A learner who goes through a proper learning experience would gradually gain processing skills and the ability to internalize abstract ideas. A learner who possesses the spirit of enquiry should be encouraged to discuss and share his/her findings with the peer group. This will enable the learner to internalize the concrete experiences and to assimilate the abstract ideas. We must remind ourselves of the fact that presenting scientific facts through textbooks or lectures is not a suitable method for science education. At every point during the lesson the student should feel like asking 'How do you know that is right?' It is only when such questions arise that the curriculum and the textbook and the teaching are justified.

5.2.14 The Relevance of the History of Science

It is not suggested that the learner should find out everything for himself/herself or that he/she should find answers to all questions. Depending on the learner's age, nature, the specific subject taught, other methods may have to be used. At some points, a historical method may have to be used. This is also essential to inculcate a scientific temperament. This is one field that is not sufficiently considered in present-day textbooks. This is necessary for the student to understand how science works, and for the recognition that the present advanced state of science and technology is the accumulated result of the work of many scientists over the centuries. However, we must be conscious of the fact that when studying about the revolutionary

contributions of some of the extraordinarily brilliant scientists (the contributions might have arisen from their intellectual brilliance, from the opportunities they came across, or even accidentally) the learner may come to the conclusion that science is a field of endeavour meant only for the extraordinarily brilliant. Learners must be made to understand that there are several others who are actively engaged in scientific enquiry around the world. They should believe that activity in science is meant for everyone.

5.2.15 Time constraints

It is widely accepted that science education and evaluation should be activity based. While planning activities the time available for the learner should also be considered along with the learner's nature and the suitability of the activity. The time that the learner gets inside and outside the classroom and that which he/she dedicates for the learning activities related to other subjects should be taken into consideration. This shows the need for an integrated approach towards subjects and the collective efforts of teachers handling different subjects in a class.

5.2.16 Relevance of Laboratory

A well-equipped laboratory is not an indispensable factor at the lower level to make science education effective. Teachers can make use of low cost materials that are easily available for effective teaching-learning process. Science education is at its best when learning takes place tapping the possibilities of relating scientific concepts with the surrounding of the learners. Of course, along with all these, there should

be provision for a good laboratory, especially in the higher classes. The learners must be familiarised with how to handle the laboratory equipment.

For the effective use of laboratories teachers need to think of:

- keeping the laboratory clean
- classifying and labelling every piece of equipment
- ensuring freedom and opportunity to all teachers to handle the equipment in the laboratory
- providing opportunities for all learners to handle all equipment and article in the laboratory
- ensuring safety measures in handling the equipment, but it must not be at the cost of opportunities provided to the learner
- providing the learner the opportunity to do the experiments instead of the teacher doing all experiments for the learners

5.2.17 Evaluation

A comprehensive and continuous evaluation is the practise of evaluation we put forward for all subjects. The traditional method of class tests is not sufficient to evaluate the child. All the abilities of the child should be subjected to evaluation. Multiple choice questions are not suitable to evaluate mental processing of the highest order. The following elements have to be considered while evaluating the learner:

- learners should not be evaluated solely by the written mode of examination. Skills developed by the process of science education including the ability to do

experiments should be evaluated

- the relevance of multiple choice questions in evaluating science learning has been widely criticized. They are inadequate to evaluate the higher order mental processes
- evaluation should give importance to assessing performance in which skills of the hands and the mind are at work
- in science education, it is difficult to separate the process of evaluation from the teaching-learning process

The following areas of science education need to be evaluated:

- experiments
- the process of experimentation and observation
- projects
- skills that exhibit a scientific temperament
- attitude
- outdoor activities
- journals
- the use of library
- co-operative tests
- self-learning
- concept mapping
- drawings
- problem solving
- research
- debate/group discussions

5.3 Social Sciences

The study of Social sciences needs to help the learner understand social reality and equip him/her to react to social situations. The learner of social science can not go forward ignoring the growing influence of caste, race, superstitions and

unscientific practices in society. The learner needs to understand social realities like unemployment, alcoholism, drugs and increasing rate of suicide in our society and analyse the cause and effect of such issues for finding solutions to them. The employment opportunities in the fields related to science attract most of the learners towards science.

The concept of activity-based, process-oriented learning could not be actualised in the learning of the social sciences. The curriculum revision of 1997 made efforts to make the study of social sciences activity-based and process-oriented. At this stage the values and attitudes that have to be inculcated by learning social sciences were stressed upon. The possibility of integrating science and social sciences was discussed. Utilization of local resources in order to facilitate the learning of social sciences was also put forward.

Social sciences was integrated with language and mathematics in I and II standards. In the III and IV standards, science and Social Sciences were presented as Environmental Studies. From the V to X standards, Physical Sciences were separated from Social Sciences. In the higher secondary classes a completely subject oriented approach was put forward.

Social Science curriculum that stresses on social justice faced a lot of limitations. Lack of proper infrastructure and inability to utilize local resources caused problems in learning Social Science as in the case of other subjects.

The above observations are based on the suggestions made by the National Curriculum Framework 2005. But yet, the

Kerala experience has helped us in analysing things beyond the ideas put forward by NCF 2005.

5.3.1 Issues and Limitations

- teachers are not equipped to approach the curriculum in a comprehensive manner and to transact it in true spirit
- most of them have a wrong notion that textbook and handbook are the only materials for curriculum transaction
- lack of competent resource persons in teacher training programmes
- lack of awareness about textbooks suitable to activity-based classroom
- classrooms that depend only on the traditional learning materials
- inefficiency of teachers in overcoming the academic issues by proper planning
- lack of continuity of cluster meeting of teachers, complacency in utilising innovative strategies in teaching-learning process and lack of effective monitoring system
- lack of books and other materials that are required for gathering information
- difficulties faced in continuous evaluation
- lack of means to ensure whether learners make use of the values and attitudes they have acquired in their daily lives
- lack of parental awareness on latest learning principles
- lack of proper interventions from the part of local self government bodies
- the different subject combinations in

social sciences/commerce at the higher secondary level

- over loaded content, and arrangement of it not suitable for spiralling of facts and figures
- lack of possibility for critical assessment of information given
- dearth of scope for converting pieces of information gathered to knowledge
- over looking the fact that different subjects that come under Social Science have there on method of study and approaching all subjects in the same fashion
- lack of proper accessibility to resources such as reference book, internet and other media
- the existing period structure
- the inability of the curriculum to accommodate the different cultural sects within our society such as adivasis and dalits and their resultant alienation. It also results in ignoring dignity of labour and the knowledge of the marginalised
- lack of integrated approach at higher levels

5.3.2 Aims

- creating opportunities for developing awareness on the complementary nature of the individual and the society and his/her physical surroundings
- developing opportunities to understand the present status of the society and compare it with earlier times for developing perspective about the future and intervening for materialising it

- creating awareness on production and distribution of wealth and economic relations in society and to equip the learner to intervene in economic matters in favour of the larger interest of the society
- formulating ideas regarding social structures , its development and its relationship with social contexts and the role of economic relations in social development process
- forming conclusions about power structures evolved in different stages of human development, systems of administration and the state
- developing awareness on democracy, social justice, equality and secularism and forming stance against the forces that are opposed to them
- understanding problems faced by the marginalized and taking stand points for helping them to get equal justice
- familiarizing with the methodology of learning social sciences and developing skills related to it

5.3.3 Primary Level

At the primary level, an integrated approach is desirable. The learners should be able to link the experiences gathered by them with the learning materials. There should be provisions for the learner to form ideas based on concrete facts. Learners must not be forced to attain a level which is beyond his/her reach. There should be scope for the learner to apply what he/she has gathered.

At the upper primary level a continuation of what is suggested for lower primary can be made. The possibility of integrating different subjects under social

sciences may be explored. At this stage, the range of experience of the learner is expanding and when the learner passes through learning experiences related to his/her own locality he/she must be able to extrapolate it to the state and national levels and analyze it as well. The learner should view history by fixing himself/herself in his/her immediate social surroundings and evaluate these surroundings against the backdrop of the history of the nation.

The learner needs to be familiarized himself/herself with the administrative setup and public institutions in his/her vicinity.

At this stage the learner should get an opportunity to involve himself/herself in group activities that help him/her to acquire values such as democracy, equality, and social justice and to collect data by interacting with the society to construct new forms of knowledge.

5.3.4 Secondary Level

The learners at this level belong to an age group that enables them to take up responsibilities and to interfere creatively. The learning activities should be designed in such a way as to create an integrated experience of all the subjects that come under Social Sciences. Here integration of ideas and varied learning methods should go hand in hand.

The learner is capable of internalizing abstract ideas at this stage. Therefore in learning Political Science there should be provision for him/her to learn ideas such as equality, justice, brotherhood and self esteem. He/she should be able to liberate himself/herself from all forms of exploitation. The child should gather

knowledge about historical events as well.

The learners at the secondary level have a high sense of self-esteem and self realization. The education on contemporary subjects should focus on assimilating the experiences of the marginalized and must use the vast quantity of knowledge that they possess. The same perspective has to be maintained in the learning of History as well. In learning the history of the freedom movement of India learners must be aware of the involvement of the different regions and social classes in it.

The learning of Geography should provide the learner boarder environmental perspective that upholds the idea that the earth is an invaluable asset handed over to us by our predecessors and that it should be properly conserved for the generations to come.

The study of Economics should help him/her go beyond statistical data collection. Instead it should equip him/her to formulate ideas in economics which are socially relevant.

When we say that the learner must familiarize himself/herself with the learning methodology of different subjects we do not mean to say that it should be a process that aims at collecting information from different subjects. The plethora of information should not hinder the construction of knowledge.

At this stage, the students are capable of social interaction. Therefore the curriculum should provide more opportunity to the learner for communication with the outside world and the realization of information that he/

she has internalized. The formation of school parliament and club activities would serve to familiarize the students with administrative set ups and their functioning.

5.3.5 Higher Secondary Level

This stage can be looked at in two dimensions.

In the case of a few learner, this stage is the final phase of formal education. It helps them enter the job market. It also develops in them the ability to interact with the society. For some others, the higher secondary is the spring board for higher studies. These learners should acquire the basic skills to pursue the study of a subject of their own interest. Along with that, the learner should get an opportunity to acquire social skills.

Both these groups of learners should get a chance to select subjects according to their interests and develop the ability to handle abstract ideas. They should go through different learning methodologies. Learning experiences have to be arranged in such a way as to facilitate learners from all regions and social classes. The self esteem of all the learners should be elevated.

Different subjects have different modes of approach in the learning process. Still, we must ensure a link between all these to the extent possible. Along with that, we must develop learning materials that can provide a variegated experience to the learner.

The learners at this level are able to interact with the society in a more accomplished way and they must be able to apply knowledge that they create in real social situations. The activities taken up

by the learners should be approved as valid learning activities.

Within the school atmosphere, there should be practical situations to utilize knowledge that the learners create. For instance, the history museum created by learners as part of learning history or a co-operative society led by the students as a part of learning economics should be considered as learning activities.

The learning experience of all levels should be organized by considering the curriculum objectives of social sciences. Apart from the information a learner acquires by learning Social Sciences the knowledge to be constructed by the learner must be clearly defined. The learning objectives need to be fixed in accordance with it. It must be born in mind that the development of different levels of learning of Social Sciences get exemplified in making absolute knowledge a dynamic social praxis.

5.4 Mathematics

The basic characteristic of mathematics is to analyze and interpret the world on the basis of numbers. Most of the times when facts are explained with figures they are understood better. When we present the numerical relations inherent in natural phenomena through algebraic equations, it becomes possible to arrive at minute forms of knowledge and accurate predictions. From this angle, mathematics is a numeric-centred language. Just like language that has a creative template other than the practical discourse level, mathematics has an independent logical trajectory other than the practical numerical calculations.

5.4.1 Why is Mathematics Difficult for Students?

Students find it difficult to imbibe the basic tenets of mathematics. The condensed forms of mathematical theories are not palatable to a large section of the student body. As these theories begin to explain primary numbers and abstract ideas the fissure widens. The spirit of enquiry that led to such theories or the causative conditions are not being brought to the discourse.

The established methods of mathematical calculations have been moulded over centuries. Learning mathematics becomes a herculean task when the student is not familiar with the early methods and without training in the proper method for the formation of ideas. The repetitive nature of exercises in order to gain proficiency in mathematical calculations makes the learning of mathematics uninteresting. Mathematics is a language that presents facts through figures. There is no need for the children to apply mathematics in their real life. This is one of the reasons why they stay away from the subject. Mathematical signs are suddenly introduced and the importance given to the established methods of calculation are other factors that distance the learners from the subject.

5.4.2 Why Do We Learn Mathematics?

Usually, noble ideas such as 'mathematics is essential in daily life' or 'mathematics helps in the evolution of logical reasoning' are presented during the discussions on the necessity of learning

mathematics. More clarity is required in this regard. In the present system, all students from the 1st standard to the 10th standard are compulsorily made to learn mathematics. At the Higher Secondary level, it is an optional subject. Mathematics taught till the 10th standard has many levels.

As we make arrangements to teach mathematics and science with more priority than given in earlier times, and even as we stress the importance of practical knowledge, we have to insist on something else as well. This is 'methodology'. Whatever one thinks about, the process of thinking should be systematic and methodical - this is what is meant by methodology. Whatever the subject taught, an additional benefit that is aimed at is to make the student capable of and inclined to systematic and methodical thought. Mathematics and science are the two subjects that are ideal for the development of this capacity. However, the method by which the subjects are taught is in no way capable of doing this. The aim being to attain pass marks in some examination, notes are given on each subject in the curriculum and the students are encouraged to repeat the answer ten times by rote to enable them to reproduce it. This is not surprising in a system where education is aimed only at passing examinations. But, this means that the effort taken to teach subjects like Mathematics and Science are wasted for the most part. It is past time that we learnt to avert this tragedy.

(Public Education - For What? How? Joseph Mundassery)

They are:

- Mathematics that is required in daily life.
e.g. basic calculations, percentage, measurements etc.
- Mathematics that is useful for higher studies.
e.g. Trigonometry, statistical data interpretation, Algebra and Geometry.

- Ideas that go deeper into the complex details of Mathematics:

e.g. Proof of geometrical principles, the latent infinite character that is inherent in irrational numbers etc.

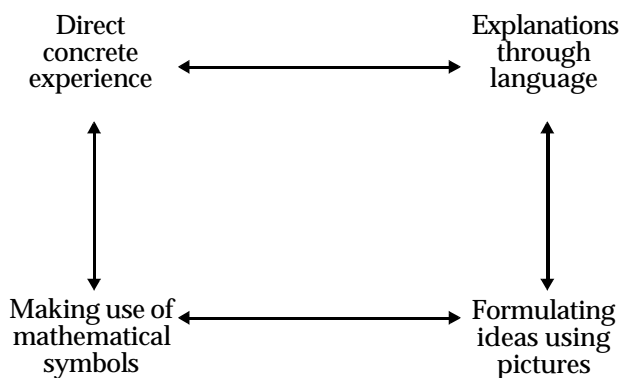
Learners who do not acquire knowledge in these three levels fail in the Secondary level examination. A learner who is excellent in languages or social sciences has to terminate his/her studies because of his/her lack of knowledge in trigonometry.

There is a specific behavioural change that the learning of each subject can bring in a person. In the National Curriculum Framework, the chief aim of learning mathematics is for the mathematisation of thought process. The characteristics of this process are clarity of thought, the ability to arrive at logical conclusions, the ability to handle abstract ideas and the capacity to analyze facts systematically. The study of Mathematics can surely assist in the assimilation of facts in a detailed manner. As stated earlier, the method of mathematics is to comprehend the world through numbers. As a first step, facts are presented in the accurate forms of numbers. Mathematisation attains perfection when variables are introduced to demonstrate facts which are inconsistent and the connection between these facts are explained with the help of algebraic equations. When Geometry, which is the study of figures, gets connected to numbers and Algebra, mathematical branches such as Calculus develop.

The suggestions of the National Curriculum Framework regarding the learning of Mathematics are:

- learners should enjoy learning Mathematics
- they should gain a deeper insight into the subject than a mere study of numbers or theories can give. Mathematics does not comprise merely of equations and mechanical steps
- learners should be able to communicate in numerical terms
- study of the subject should help the learners raise sensible issues, the solutions for which should be arrived at
- learners ought to equip themselves to understand mathematical relations, perceive structures, think logically and differentiate between what is right and what is not, while examining statements and facts
- learners should understand the basics of Mathematics
- every learner should be confident that he/she can manage Mathematics well
- the basic content of mathematics provided at school in the form of Arithmetic, Algebra and Trigonometry provide the ability to understand abstraction, structuralization and generalization

We must understand the fact that the child acquires numerical ability to some extent even before reaching school. By providing more ideas regarding Mathematics, we can supplement this ability. The learner, after co-operative, collaborative learning, should be able to explain what he/she has internalized. This can be illustrated as shown overleaf.



5.4.3 Necessity of Learning Mathematics

Different mathematical ideas are used for different purposes. During the formation of any idea, the necessity for such a formation makes us use whole numbers and fractions as the case may be. By organizing discussions and activities that inspire the learner, we can relate the activities and the problems to the learner's life.

5.4.4 Open-Ended Questions and Divergent Thinking

The teacher should ask questions that are open-ended. There should be chances to generate many conclusions which can be directly or indirectly connected to the query. Thus, there is scope for divergent thinking. And, we move away from the

conventional method of finding a single answer to a question.

5.4.5 Mathematics - a Language

Mathematics is a language. The factors like letters, writing, reading and grammar in language can be seen in mathematics as well. Through this language, communication and translation also take place. Just like the discourse forms in language, we come across discourse forms such as figures, tables and graphs in mathematics. Therefore, the child has to use these discourse forms in order to understand mathematical ideas and communicate through them. The learner must be enabled to use mathematics to form new mathematical relations and to clarify his/her thoughts. This skill helps in problem solving.

5.4.6 Establishing the Logic of Mathematics

By learning mathematics, the learner should be able to come to conclusions by realizing the cause and effects of a problem. There is no point in learning a definition or a formula by heart. In order to reach certain general ideas, the learner has to go through phases like guesswork,

Estimation and Guesswork

It is often stated that accuracy is the hallmark of mathematics. However, in finding a solution to any problem that occurs in real life situations, it becomes relevant to arrive at an estimate. Frequently, this becomes more important than arriving at an exact answer.

A student who calculates how much money is required for textbooks and uniform, a father who calculates how much money is needed to conduct his daughter's wedding, a farmer who calculates how much harvest he is likely to get that year - many people like that depend on an intelligent guess or estimate to arrive at the answer rather than an exact amount. That is why it is important that a child should be taught to arrive at an estimate in this way or to make an intelligent guess. A child who is doing the addition $238+759$ should be given an opportunity to guess whether the answer would be above or below one thousand. Such a guess will quite often lead the child to the correct answer as well.

analysis, interpretation, generalization and inference.

5.4.7 Problem Solving

We have learnt that by learning mathematics, one is able to face the problems in daily life and come to conclusions after a deep analysis. In order to achieve this end, problem solving capacity has to be developed as a life-skill. To execute this, a mechanical exercise of mathematical steps will be of no use. Instead, a lot of opportunities for problem solving should be provided. There should be provision for problems such as abstraction, approaching a problem in a step by step manner, verification and speculation and case studies. The ability to expand a given problem according to one's own level of understanding and that of giving a new dimension to mathematical posers are instances of problem solving.

5.5 Vocational Education

Though as a part of the Education Policy of 1986 extensive planning for vocational education had been done it did not materialise. If vocational education is to be implemented effectively there must be thorough changes in all fields of education such as curriculum, textbook, teacher training, monitoring, evaluation etc.

In Kerala, three types of institutions are there in vocational education sector:

- (i) Technical High Schools
- (ii) Technical High Schools and Higher Secondary Schools under IHRD
- (iii) Vocational Higher Secondary Schools

The Technical High Schools provide

admission to students who have completed their VII standard in the general education stream. The learners who qualify the X standard from the Technical High Schools are given admission in the Higher Secondary Schools under IHRD, Vocational Higher Secondary Schools and Polytechnic Colleges. There are 37 such schools in the state. For vocational subjects no special textbook is prescribed. Sourcebooks for teachers are made available. All the Technical Schools in the state are in the government sector.

5.5.1 The Institutions under IHRD

There are 25 schools under IHRD. Among these, 9 schools have provision for admission at the Secondary level. Subjects that come under Physical Science (Electronics, Computer Science, Physics, Chemistry and Mathematics) and Integrated Science (Biology, Computer Science, Physics, Chemistry and Mathematics) are taught here. Learners who have qualified VII standard in the general education stream are given admission here.

5.5.2 Vocational Higher Secondary Schools

There are 375 Vocational Higher Secondary Schools in the state. Most of these are in the rural area. These function with Central Government aid. The curriculum as designed by Sundarlal Sarma Central Institute of Vocation Education, Bhopal, is followed in these schools, though a number of changes have been brought in to suit the conditions of Kerala. A thousand batches exist at present, in forty two different courses spread over four groups.

Issues that are related to infrastructure pose a problem in this stream. The laboratories, libraries and work sheds are not properly equipped. No dairy farm is available at the centres where courses on Livestock Management are introduced. LCD and Internet are not available where courses related to them are taught. Even basic necessities are not available in most of the schools. No facility has been provided to learn arts or sports.

The curriculum of vocational subjects is outdated and rigid, and so, does not provide importance to learning. No exposure to English is provided and so the students lack skills in communication. The content is not suitable for the age and nature of the children. The curriculum does not help the child to face the challenges in the manufacturing or marketing sectors. Though the vocational higher secondary course was launched for vocational education, other subjects started creeping in gradually. The course turned out to be an easy path for higher studies. Therefore, the learner could not gain any deep experience in the vocation chosen.

Along with all these, learning materials and facilities like library, text books, practical manuals and reference materials are not provided in sufficient quantity.

The situation gets worse because of the lack of teacher training programmes and ineffective on-the-job training.

The course content is too heavily for the teachers to handle effectively. Ironically, permanent teachers are not provided in most schools. There is no scope for higher studies in the vocational subject chosen. The Public Service Commission and the universities do not recognise the courses

in vocational higher secondary as qualifying courses.

No financial assistance is provided to the production-cum-training centres to come up with products and to market them. For training in the respective job, learners get only ten days in an academic year. This is quite insufficient. Career guidance and placements are conducted just for the sake of conducting them.

5.5.3 The Approach to Vocational Education

An activity-based curriculum that equips the learner to acquire self-confidence and self-sufficiency should be introduced. The learner should be given opportunity to interact with his peers and also with the society. He/she should utilize his/her reasoning ability to analyse and react to learning experiences. He/she should be able to understand the available job opportunities and should be given on-the-job training by experts in the field. This should be planned by considering the locally available opportunities and by observing the job market. There should be an opportunity at the schools where training programmes are conducted by service providers and skilled artisans to help the learners attain their goals.

The learners should be able to choose a vocation of their choice from the High School level onwards. At the Higher Secondary level, vocational education should be given more importance. Academic subjects should also be included. As part of the course, the learners must visit various institutions that are related to their particular vocation and must get trained. Hospitals and industrial units in the locality should be utilized for this purpose.

- workshop training should be provided with the assistance of experts and the local work units
- diary farm is to be ensured where courses on agriculture and cattle rearing are given
- case study should be carried out to understand the issues in the job market
- opportunities should be made to hold interviews with experts in the field and there should also be provision for conducting short term projects
- scope for practical application should be given more importance than learning theory

5.6 Art Education and Health and Physical Education

The role of Art Education in learning has been recognised for decades now. The cultural heritage and tradition of a locality is closely related to its art forms. Art education serves as the channel to make the learner study his/her surroundings. Modern educational theories and perspectives underline the necessity of art education. The application of Multiple Intelligence Theory is of great importance in concept formation and creative expression. Art education promotes a learner's constructive and creative skills. Physical fitness and a healthy mind are essential for a learner in his/ her learning process. Being dynamic is an inborn instinct of the child. Health, whether physical or mental, is a decisive factor in personality development. It gets influenced by factors that are organic, social, cultural, economic and political.

5.6.1 The Present Condition

Though art education, health and physical education are identified to be crucial in the development of a learner, the curriculum has not been designed to include these so as to assist the comprehensive development of the child's personality.

Art education has been reduced as a mere practice for art festivals which have become the prerogative of a few selected learners who are given intense coaching even at the cost of instructional hours and without any continuation in the performer's life once the festival is over. Art festivals are accessible only to elite class of learners. No provision is made for identifying those who are talented but lack facilities. The curriculum does not offer any chance for such children to improve their artistic abilities.

It is only by organizing sports meets that we make the students engage in any sporting event of their interest. Talented students are not given sufficient consideration or opportunity. Proper nutrition is not provided. The learners are not provided with any information on hygienic and healthy lifestyle.

5.6.2 Learning Art

The learner's natural and inborn talents and attitudes need to be tapped fully in the process of knowledge constructions. This helps the learner to understand his/ her surroundings deeply and to realise his/ her cultural identity as well. As art education involves factors that influence the learner's constructive and creative talents the various methods of art education need to be included in the curriculum.

Visual and performance art that pave the way for creative interaction with one's surroundings need to be given prominence. Art forms like acting, dance, music, visual arts, should be included in the curriculum. This should be made possible by integrating art education with other subjects of study. The possibilities of art education can be explored at all stages in learning languages and the environment. Learning experiences that are provided should create an awareness on values and a social perspective. The learners should be made aware of the impact of consumerism and urbanisation on art.

Learning experiences that help the learner go for higher studies should be provided. The curriculum of art education should be flexible so as to incorporate the local variants of art forms. Theatre studies for developing skills in expressions and folk art and folk songs for identifying one's cultural identity need to be familiarised. There should be opportunities for familiarising the learners with different musical instruments and different streams of music. Using organic colours for painting needs to be promoted. Scope for learning animation using multimedia possibilities needs to be provided. Opportunities for learning folk dance, traditional dance forms, and classical dance forms, cinema and modern audio-visual media need also be provided. Learners should get first-hand experience in documenting issues of their localities visually. For this learners are to be given opportunities to view good films.

An integrated approach for learning art is desirable at pre-school and primary stages. But in secondary and higher secondary along with the integrated

study of art there should also be opportunities for learning art as a separate subject. In higher secondary different areas of art education such as drawing, theatre, music and dance are to be introduced as an optional subject so as to help the learner pursue the learning of that art forms in higher studies as well.

5.6.3 Health and Physical Education

The health and physical education should help in the physical, mental, emotional and social development of the learner. Health is an important factor in the overall development of a child. The child should develop awareness regarding a healthy lifestyle, nutritious food and health issues. The curriculum should include personal hygiene, cleanliness and food habits. It should also address the problems and emotional stress that a child faces during every phase of his/her growth.

A proper awareness regarding gender equality should also be provided to the learner. As part of the curriculum, learners with higher physical capabilities should be recognized and given ample opportunity for developing that faculty.

The curriculum experience of health and physical education need to be given at different levels and a slow gradation and growth from the pre-primary to the higher secondary levels need to be thought of.

The learners must have an awareness regarding food habits, first aid, adolescent education, disease and prevention, kinaesthetic and rhythmic activities, gymnastics, athletics, minor games, native games, major games, yoga, swimming, cycling and martial arts.

According to the inherent tastes of the

learners, these skills should be imparted to them from pre-school to higher secondary levels - in an integrated manner up to the lower primary level and as a separate subject at the secondary level.

Students who display excellence in the field should be allowed to opt for health and physical education as an optional subject at the higher secondary level.

The curriculum must create in the teachers and students awareness on population and growth and must evolve a responsible attitude towards them. They should also know the adolescent issues and develop awareness about a healthy man-woman relationship.

Population studies should be integrated with other subjects. It should not be taught separately. It should also be addressed in teacher training programmes.

5.6.4 Local Resources

The importance of local resources should be realized in the field of art education, health and physical education and work experience. By identifying the social setup and possibilities for each school, resource mapping should be conducted. Each resource centre can be considered as a study centre. This can be done with the help of local self-government bodies. The collective effort of the PTA can also be sought in this regard.

5.7 IT-Assisted Education

The present status of IT education in high schools in Kerala helps only to develop certain fundamental IT skills. The learning process of different subjects can make use of IT to make learning effective and meaningful. This deepens the range and scope of knowledge that each learner

gathers. IT can also help in teacher empowerment.

First of all, we must realize that computers are essential in our present age in almost all fields. With the help of computers, it is possible to solve almost all the problems associated with the learning process. It can provide assistance to both the teachers and the students. The most important element in such a learning process is that computers have a wide range of interactivity that most other audio-visual aids lack. Therefore, it is the most effective learning aid. It is advisable to identify the areas in each subject, where computers could be used to carry out the learning process.

5.7.1 The Curriculum Possibilities of IT-Assisted Education

We must identify the different areas in different subject which could be taught with the help of computers. We should also be able to develop learning materials for this. Teachers should be given training to use these learning materials. Proper support systems should be provided to the teachers.

IT should be used in education as suggested in National Curriculum Framework. We should employ IT education by taking into consideration, the available resources in a school, the needs of the school, its limitations and possibilities. In every school, a technology plan should be prepared.

We should aim at accomplishing the educational aims from the pre-school to the higher secondary levels and should support the teachers as well as the students. The new approach should be challenging, interesting and creating

responsibility both in the teachers and the students. All learners should use the computer for their different learning needs. They should learn IT skills. The influence of IT on society should be realized and learners have to use it for social welfare. The learner must be capable of critically analysing the knowledge based in IT and evaluate it. More over the learner and the teacher must acquire skills in data consolidation and analysis using IT.

IT would help the teachers to execute their roles in the best way possible. These possibilities could be utilized in school administration, planning learning activities and evaluation. Therefore teachers should engage in experiments, studies and research on the possibilities of IT.

They should develop software related to the content of different subjects. This can include tutorial software, simulation CDs and interactive multimedia packages. Types of software like the Office package, DTP, and graphic painting could be used to develop IT skills. Teachers can make the students use these types of software for data collection, analysis and preparation of reports.

5.8 Evaluation

Evaluation is an inevitable part of the process of education. This helps the teacher to identify the areas of excellence in the learner. It can also suggest a proper direction to the process. Evaluation process can direct the course of studies and provide a proper direction for studies. It is not desirable to limit evaluation as a means for remedial teaching or as the basis of classification of learners.

Teachers should take up the responsibility of organizing class-wise activities as a part of the learning process to identify and solve the limitations of the learners. Evaluation, in the broader sense of the term, is not essential for this. The National Curriculum Framework 2005 suggests that evaluation should not be limited as a means remedial teaching. The lack of competence of the learner in mathematical calculation could be identified as a part of the learning process. By providing newer leaning experiences this could be solved. For a learner who is weak in using the proper morphemes with words should be provided learning experiences based on that. Here also, evaluation that helps remedial teaching takes place. But this does not help in identifying the area of excellence of a learner.

The practice of assessing the excellence of a learner by standardized examinations conducted at a particular stage alone has many limitations. Assessment has to be carried out by considering the response of the learner in different situations. Therefore evaluation has to be continuous and be carried out along with the learning activities. The result of evaluation has to be an indicator for inclusion and acceptance and not to be a norm for exclusion.

5.8.1 Lessons learnt from experience

The curriculum revision of 1997 brought in considerable change in the process of evaluation. It spread the message that evaluation ought to be continuous and comprehensive. In order to avoid unhealthy competition, the grading system was introduced. It was decided that questions for the terminal

examinations should be in conformity with the learning activities. The influence of such an evaluation system was seen up to the higher secondary classes by the year 2007.

The new curriculum put forward a learning practice that is activity-based and process-oriented. It was widely accepted that process skills like observation and experimentation could be evaluated only by a continuous evaluation process. Teachers learned how to evaluate students according to classroom activities. This has led to the planning of teachers to become more effective and meaningful. Specific areas for continuous evaluation were fixed. The introduction of indicators for each area made evaluation easier. In the primary classes, different skills could be graded directly. In the upper primary and high schools, each indicator was given a score which in turn led to a grade. The same system was implemented at the higher secondary level with slight changes.

In the higher secondary level, the process-oriented learning and continuous evaluation were implemented without much changes in the content area of different subjects. Hence the process of evaluation was done as envisioned. But a change in the nature of the public examination could be made possible. The supremacy of content oriented questions was given up. It was generally accepted that the process of learning and thought process have to be tested. The new evaluation was based on the premise that any learner who passes through a process of learning should be able to answer a particular level of questions.

The new system of evaluation has a lot of practical limitations. It was not accepted at the higher levels. Though it was envisioned as a daily activity, in practice it was observed to be detached from learning. Most often, it remained an evaluation of the learner output alone. Lack of flexibility in deciding the areas for continuous evaluation and the inclusion of certain elements of terminal examination made the entire process lose its substance. The anxiety among parents, teachers and learners about the traditional nature of most of the competitive examinations made continuous evaluation a meaningless activity.

The grade and promotion to higher classes were decided up on by adding the score given for continuous evaluation and terminal examination in a specific ratio. But, while awarding the continuous evaluation scores, most of the teachers turned subjective rather than objective. The standard of continuous evaluation has to improve if the process is to be meaningful.

At the national level, a lot of new reforms are taking place in the field of evaluation. The National Curriculum Framework has made some interesting observations on this: "The aim of evaluation is to measure the progress made by the teacher and the learner in achieving the curriculum objectives. This will, in turn, help them score better in future. There is an opportunity for the child to improve his/her performance without fearing the examination or the evaluation process."

Correction of mistakes and grading that takes place in the presence of the learners is successful in convincing them about the errors they have made. Learners are

given a chance to correct their errors and to improve. It is not only the result of the learning activities that should be evaluated. The learning experience should also be taken into consideration. The learners should be allowed to speak freely about their learning experience and should be able to evaluate them. This gives the teachers a proper feedback on the learning process.

5.8.2 How Can We Make Continuous Evaluation Better?

1. Continuous evaluation should be an integral part of the teaching-learning process. It should not be a mere appendage, but an active element of the process.
2. The relationship between continuous evaluation and learning outcome should be indicated accurately and ensured.
3. The continuity of continuous evaluation must be ensured. The elements of continuous evaluation should be included in all classroom activities. For example, continuous evaluation takes place in an informal way while checking the homework, asking questions or observing the learner. Methods like test papers, oral examinations, performance assessment tasks, projects and portfolio could be used for continuous evaluation.
4. Different techniques could be used for continuous evaluation. The curriculum must be flexible enough to accommodate all these for the sake of the learners as well as the teacher.
5. There should be liberty for the children to choose different modes of study and learning activities that suit their inclinations.
6. The development of multiple intelligence of the learner should be made possible through the learning process. Along with tests that measure logical and linguistic abilities, other tests like data collection, exhibition, preparation of journals, diaries and projects could be included. The teachers should prepare checklists, rating scales and other means of observation to evaluate the learner.
7. Techniques of grading should be flexible, effective and transparent. Factors like personality, behaviour and attendance should not be considered to grade the learner. The activities of each term should be planned by the teachers and the students. The teacher should analyse the evaluating activities along with the students. The learner should get an opportunity to improve. There should be scope for self-evaluation and peer evaluation.
8. Term evaluation and continuous evaluation should be made complimentary to each other. The aim of both is to satisfy the curriculum objectives. Evaluation results and grades should enable the learner to realize his/her strengths and weaknesses.
9. The teacher should develop suitable tools for continuous evaluation. It is the performance of the learner and the product of the particular learning activity that are subjected to continuous evaluation. The indicators that facilitate this should

be identified in the sourcebook. In order to evaluate the products the teacher ought to understand the process that the learner has undergone. There should be scope for the learner to evaluate himself or herself. This should be based on clear indicators. While evaluating the process and the product, the process should be given more importance.

10. Continuous evaluation should be feasible and just. The processes of evaluation should touch all the skills and content suggested by the curriculum. It is only when the learner is given the freedom to take up activities that he/she can execute that evaluation becomes meaningful.

The Recording of Continuous Evaluation and Grading

In the I and II standards, the consolidation of continuous evaluation could be recorded as qualitative statements. In the III and IV standards, these qualitative statements could be recorded as letter grades. This record helps to inform the parent about how effectively the learner engages in the process of learning.

Continuous Evaluation in the Upper Primary and Secondary Levels

We must ensure that all the curriculum objectives put forward by the curriculum are achieved by the learner. Term evaluation and continuous evaluation could be employed for this. This should be recorded as letter grades and shared with parents.

At the secondary and higher secondary levels, promotions to a higher standard could be made based on annual evaluation and continuous evaluation.

Monitoring should be strengthened at different levels with proper assistance.

Suggestions for Improving Evaluation system

1. It is the teacher who has the right to evaluate the academic achievement of the child.
2. As there is continuous evaluation, only an annual examination is necessary at the Lower Primary level. As for the I and II standards, there is no need for an annual examination.
3. At the upper primary level, along with the terminal examination, a written examination could be held in the middle of the academic year.
4. The learner should be able to discuss the learning experience with the teacher. Continuous evaluation should help in sharing the excellence and the limitations of the learners.
5. At the high school level, periodical feedbacks, a half-yearly examination and the terminal examination could be held. The same system could be followed in the higher secondary level.
6. The learner should be able to make an answer key and evaluate him/herself.
7. Question papers should stress on the practical aspects of knowledge.
8. There should be provision for parents, teachers and media to understand the educational systems of other countries.
9. Teachers and educationists should be encouraged to develop new modes of evaluation.

10. In X and XII standards Board Examinations should be held.
11. In IX and X standards, there should be opportunity to choose subjects according to one's taste.
12. There should be an opportunity to opt for either the general or the special levels of subjects for the Board Examinations.
13. The portfolio analysis of the learner could also be made a part of the monitoring system.
14. A system that allows the learner to write the examination only when he/she is ready should be implemented.
15. Parents can be made unofficial monitors.
16. Open book examinations, examinations which publicize the questions earlier and online examinations could be introduced.
17. The schedule of public examinations should be arranged in such a way as to ensure that there are 200 academic days.



Changes have to be affected at various levels of school education in accordance with the visions put forward by the Kerala Curriculum Framework 2007. These changes have to be segmented as those that can be implemented with immediate effect and those in a phased manner taking into consideration Kerala's special situation, complexities involved in execution, order of priority and so forth. The detailed plan layout of each change to be affected is also required.

The systemic reforms envisioned in the light of the curriculum approaches and the ones which can be implemented are given below.

6.1 Stages of Education

The general education sector in Kerala consists of pre-school, primary, secondary and higher secondary stages. Hence, the general education policy should be planned in a comprehensive and diverse manner, keeping in mind the peculiar characteristics of the children in different stages.

6.1.1 Pre-School

A scientific and healthy childcare and child educational environment must be ensured in every pre-school. The physical environment of all anganwadis and pre-schools should be improved to meet the above mentioned objective. Spacious,

airy and shady atmosphere, quality playing materials, qualified instructors, supply of nutritious food and medical assistance are the basic facilities required in pre-schools.

The system of learning and the materials based on a unified curriculum should be implemented in all schools. However, the curriculum of pre-schools should be flexible and there should be scope for adapting the curriculum according to regional diversities. The curriculum must ensure opportunities for learning to tribal children, specially abled children, children belonging to sections of socially and financially backward communities as well.

The academic affairs of the pre-school stage must be undertaken by general education department and the child care activities by the social welfare department. SCERT, the apex academic institution in general education sector should exercise complete control of the academic affairs of pre - schooling.

Supply of nutritious food, maintenance of hygiene and health care should be under the control of the social welfare department. The department of social welfare should also make arrangements for issuing health cards to all children. The overall responsibility of pre-schooling must be taken by the local self

government organizations and welfare committees are also to be formed and equipped in each institution.

The minimum qualification for ayahs and teachers should be fixed and in-service training have to be provided to them periodically. A professional approach should be developed in this sector by arranging venues for cluster-level sharing of experiences. It is possible to strengthen the community participation of pre-schooling by floating the idea of neighbourhood schooling. A comprehensive pre-school bill must be formulated keeping in mind these factors. The bill must have strong recommendation for ensuring pre-school education to all children in the age group of 3 to 5.

The instructional hour of each pre-school should be flexible considering the social needs of the community of parents. Pre-schools need to impart only a kind of informal learning for 2 to 3 hours and the rest of the time has to be focused on childcare activities.

6.1.2 Primary Level

Primary education which spans from class 1 to 7 is the longest phase in the existing system of school education and it is divided as lower primary (1 to 4) and upper primary (5 to 7). Further classifications can be considered keeping in mind the diversity of growth in children of the stage.

6.1.2.1 Subjects for Learning

- The main subjects of study in lower primary level should be learning of mother tongue, Mathematics, Environmental Studies, Art Education, Physical Education and

Work Experience. Learning of English should also be included as one of the subjects for learning considering the demand of the public. Learning of Arabic language needs to be continued due to certain special reasons.

- In upper primary stage subjects like Basic Sciences, Social Sciences and Hindi should be included. An integrated approach in learning different subjects has to be followed wherever possible. The history teacher who teaches about pyramids must present the creative and mathematical awareness behind using the structure of a solid in constructing a pyramid. The curriculum of mathematics has to be in proximity with real life situations and the study of other subjects. The approach of learning at this stage is a bit different from the integrated approach followed at the lower primary level. It views things in closer and more micro levels. In such an approach though subjects get separated as different entities learning experiences have to be provided so as to clarify their inter-linkage.
- There should be provision for students at the upper primary stage to learn their mother tongue, other first languages, English, Mathematics, Social Sciences, Basic Sciences, Hindi as well as Art Education, Physical Education and Work Experience, cultural activities, library activities and other creative activities.
- Opportunity to learn Malayalam should be provided for students who learn languages like Arabic, Urdu and Sanskrit as first languages. Learning Materials conducive to this must be

developed. The proficiency in languages (mother tongue, English, Hindi and other languages) should empower the learners and they should feel proud of the fact that they are equipped with the power of language.

6.1.2.2 Learning Materials

The fact that in spite of the introduction of activity based curriculum we have not yet been completely liberated from textbook-centred learning is to be taken as a major lesson. The conventional notions regarding learning materials should not continue.

Any context or object that might facilitate the transaction of curriculum must be considered as a learning material. The resources available in one's locality (lakes, hills or farm lands), one's school (the lattice work in windows, corners, angles, patterns, distribution of drinking water, plant diversity etc.), authentic materials (news papers, notices, intimations, boards, forums, name slips), formal occasions (Gramasabha, meetings, observance of certain special days), learner groups' products (supplements, constructions, exhibits, reports, documentaries), learning aids that are made in advance by teachers (models, picture cards, albums, compact discs, charts, collections, special editions, constructions etc.), materials created centrally (text books, work sheets, work sheets for assessments), should all be considered as learning materials.

6.1.2.3 Environment for Learning

- considering the child's nature
- protecting the rights of children
- suitable for the learning approaches adopted

- considering the democratic-secular values of the society
- ensuring equal opportunities
- attractive to students
- containing possibilities for learning outdoor
- with adequate number of equipment for playing
- ensuring continuum of pre-school experience (*in 1st standard, specifically*)
- providing environment for learning languages like Tamil and Kannada in their regions
- providing learning environment in tribal areas to use their local dialects in standards 1st and 2nd and then shift to formal language
- friendly and non-intimidating environment
- opportunity for students and teachers to come to a common platform.
- with hygienic classrooms and proper seating facilities
- airy classrooms with sufficient light and with proper locking arrangements
- with facilities like class library, laboratory, experiments corner and playing equipment corner
- with drinking water facility in each classroom
- with boards that can be used as and when the teacher or learner wishes to use
- providing teacher learning material, first aid kit and playing equipment
- providing Information Technology facility for monitoring the functioning of the class, continuous evaluation and class level PTA meetings
- ensuring environment for encouraging students to exhibit their products and constructions

6.1.3 Secondary Level

At the Secondary Level, students should acquire in-depth knowledge of Mathematic, Science and Social Science and should also acquire the learning methods of these subjects. The knowledge gathered should be sufficient enough to be used in daily life and it should help them obtain training in one of the vocations that would facilitate their social life. The secondary level should also help them realize their aptitudes and equip them for higher studies.

The selection of optional subject should be done keeping in mind the possibilities for higher studies. The method of learning at this level can be carried out as projects or assignments. Teachers have to provide necessary guidance for learners in undertaking the projects and assignments.

The instructional hours in a week will be 25 hours and it can be arranged as 5 periods of one hour duration a day. This time must be utilized for learning the first language, English, Hindi, core subjects, and also to engage in vocational training, Art Education, Physical Education and library and literary activities.

6.1.4 Higher Secondary Level

The higher secondary level, which is a continuation of class 10, combines the academic and vocational streams and becomes a single structure. The learners at this level have chosen their optional subjects according to their aptitudes and preferences at the secondary level itself.

The following combinations can be considered as main core subjects at this level:

1. Science - Mathematics/Biology, Physics, Chemistry.
2. Social Sciences - History, Political Science/Sociology, Geography/Economics.
3. Commerce - Accountancy, Economics, Business Studies.
4. Culture - Kerala Culture/Indian Culture, any one language and one of the art forms.
5. Vocational Proficiency - Theory and practical of the selected vocation, Practical/Marketing, Proficiency in Computers, General Foundation Course.

(The course material will enable the learner to gain expertise in a particular production or services sector. Regional specialities, availability of institutions for practical experience are factors that should be considered for introducing a vocational courses.)

Geology, Statistics, Islamic History, Computer Application, Journalism, Psychology, Computer Science, Computerised Accounting, Co-operation, Gandhian Studies, Social Work, Anthropology, Sociology, Philosophy, Home Science, Vocational Education, other core subjects, languages etc. can be one of the subjects chosen as the fourth option.

The three subjects in the five combinations mentioned are mandatory but a learner can opt for one of the subjects from the list as the fourth option. For example, a student studying in science combination can also learn computer application and a student studying in vocational group can study economics or psychology. Thus it is ensured that a student learns a total of four subjects. There will be two levels

for the study of languages. One, as complementary to the study of core subjects and the other as a focused study in literature and culture as an optional subject.

The instructional hours proposed at this level is thirty hours spanning five days a week and on the sixth working day, students carry out independent learning with the help of teachers. This activity need not necessarily be conducted in schools. Any topic from the vocational subjects or music or painting or sports can be learnt on the sixth day. A student can also learn independently from a recognized industrial unit or under a local educator as well. It can also be effectively utilized by the student engaging in library work, seminars, educational visits or group studies or collaborative studies under the guidance of teachers. The nature of the sixth working day will differ from school to schools and subject to the availability of local production centres. There will be provision for issuing certificates to the learners who attain proficiency in a particular vocation within a time span of two years. This will be compulsory for all students.

Schools should make newer arrangements considering the availability of resources. It must be done considering the possibilities of different options for learners in future. The approach we have to adopt is to keep the diversity of higher secondary education without sacrificing the spirit of general education. Discussions need to be conducted in this regard for obtaining further suggestions.

6.2 Administrative Reforms

The quality of education is determined

on the basis of the content of education, method, execution and the impact it creates in society. Community participation, perspective on education, the availability and utilization of learning materials, child-friendly environment, the preparation by teachers, making use of the support systems and continuous assessment also play a crucial role in determining the quality of education.

Quality can be attained only by the combined efforts of different agencies at different levels and administrative reforms are necessary in the educational sector in order to achieve this.

6.2.1 Neighbourhood Schools

It is essential to develop the concept of neighbourhood school which envisions the learners of a locality studying together in a nearby school and the community around the school joining hands for the progress of the school. Neighbourhood schools are critical in a curriculum that aims at making the learner realize oneself and one's society. The process of learning becomes effortless if students have the opportunity to study in schools in walkable distance. Free conveyance should be provided if it is necessary for the learners to reach the neighbourhood schools. There must be a limit to the number of students admitted in a school and the area of operation of each school. The primary section can be separated from secondary schools.

6.2.2 Children with Special Educational Needs

Inclusive education is to be encouraged with a view to helping learners with physical and mental difficulties to come to the mainstream of society. However,

students with very serious disabilities should be given facilities to join special schools. Different agencies like SCERT, SSA and the Department of Education working in special education field have to be converged keeping in mind the common aim of helping children with special educational needs.

6.2.3 Medium of Instruction

Mother tongue is the most effective medium for any individual for proper reception of ideas and exchange of the same. The declaration of national educational policy in 1986 regarding the use of mother tongue or regional language categorically endorses this view. But such declarations remain mostly on paper. It is not fair to promote a foreign language as a medium of instruction except in special situations. It is imperative that English and Hindi are taught and learnt more effectively. Efforts have to be made to clarify the prevalent wrong notion regarding medium of instruction. The medium of instruction up

to higher secondary level should be flexible enough in order to augment the student's ability to acquire knowledge.

6.2.4 Admission to School

The minimum age of admission to a school in many states of our nation is six years, but it is seven years in many countries. However, the society of Kerala generally favours the age of five as apt for admission to school. Considering the situation in Kerala, it is desirable to continue the existing practice.

6.2.5 Instructional Hours

The instructional hours proposed is five hours a day. Provision for continuing studies should also be taken care of. Laboratories and libraries are imperative for effective curriculum transaction. Time for art and work experience education and vocational education need also be provided. The school hours need to be arranged in such a fashion to accommodate learners who are socially and economically backward and those

The school annual calendar is currently decided at the state level. Several suggestions have been made in the past that the annual calendar could be planned at a more decentralised level, so that it is closer to the calendar of local activities and climate/weather. The plan for such calendars could be decentralised to the district level, and decided in consultation with the zilla panchayats....

The timings of the school day could be decided at each school level, in consultation with the gram panchayat, keeping in mind issues such as how far children need to travel to get to school. This flexibility is suggested only in order to facilitate children's participation in school. While saying this, we strongly maintain that the time spent in school itself, and on learning in the school, cannot be in any way compromised or reduced below six hours a day (and three hours for the ECCE period). Where teachers and children travel to school from a far - off place, it would be fit the overall societal concern for children if bus timings are changed to enable teachers and students to reach the school and leave at a convenient time, instead of compelling them to routinely come late and leave early.

The school day, week, month, term and year need to be planned for as a mixture of routine and variation, as children need a little of both, and the kinds of learning we would like them to experience have different requirements. We share some organisational ideas that could form the basis for planning and enriching children's time spent in school, and also some aspects that relate to institutional arrangements for the same. NCF - 2005

who do not get support or encouragement from their homes. The existing forty five minute periods must be rearranged to one hour periods and the teachers workload must also be rearranged accordingly. Studies indicate that it is ideal to begin school hours early in the morning. We must realise that learning is not a process that happens at school alone.

6.2.6 Attractive Public Schools

If schools in the public sector need to survive in the modern society they should be made more attractive. They must seek the support of the local self-government institutions and the local populace in this attempt and make the schools conducive for transacting the new curriculum.

The aided school managements should also take necessary steps in this regard. In the primary schools, there should be class library and laboratory system. Secondary and the higher secondary schools ought to possess a school library and laboratory along with facilities to utilize modern technology.

6.2.7 Decentralisation and Education

The National Curriculum Framework views decentralisation quite seriously. The Framework observes that decentralisation process in education in India is only on paper except in the case of Kerala. Even in Kerala, the real spirit of decentralisation has not been assimilated adequately. Convergent efforts of the department of education and the local self-government bodies is necessary for this. Systems like SSA need to work in tandem with the department of education and the local self-

governments. A district education committee and panchayat education committee should come into force. The development models that were emerged under the leadership of certain local self governments have to be properly analysed. The present administrative set up has to be restructured.

It has been fifty years since the Kerala Education Rules was formulated. The structure of the classroom, the administrative set up, the appointment of teachers, conduct of examinations and the teacher-student ratio have to be reformed in tune with the visions of the new curriculum. The teacher-student ratio has to be fixed at 1:25 at the primary level, 1:30 at the secondary level and 1:40 at the higher secondary level. Timely reforms need to be introduced in fixing the qualification of teachers and making their appointments.

- A curriculum that views pre-school to higher secondary level comprehensively and a supportive administrative set up has to be envisioned.
- There should be additional directors under the Director of Public Instruction to carry out different educational activities effectively. (Primary and pre-school, secondary, higher secondary and examinations).
- The educational set up has to be restructured in concurrence with the general structure of the local self-governments. There should be separate officers for corporations and municipalities. They should function as the educational convenors of the corporation and municipal committees and should carry out

leadership role in the educational activities up to the higher secondary level. Considering administrative convenience the block education officers can be given the responsibility to supervise all the schools within the limits of the block.

- There should be education officers at the village panchayat level. They should act as convenors of the panchayat education committee.
- The academic leadership of the state is vested in the hands of SCERT. SIET, SIEMAT, IT@School, and others should function as the subdivisions of the SCERT.
- There should be a restructuring of the faculty and the responsibilities of SCERT considering its crucial role as the head quarters of all academic activities of the state. This organization, which functions with limited autonomy should be entrusted with the task of re-examining teacher training programmes up to B. Ed level on the basis of the changes that take place in curriculum. SCERT should give more prominence to researches in the field of education.
- DIETs should function as the central academic institution at the district level and necessary structural changes are to be brought in for this. The district level training institute should be able to take up the academic leadership of educational activities from the pre-school to the higher secondary levels. New posts of faculty should be granted keeping in mind the trainings to be conducted at the pre-school and higher secondary levels. Academic freedom should be given to

the institution for developing regionally relevant curriculum materials and learning materials. This should be done only in consultation with the district administration. SCERT should provide academic support in such ventures.

- BRCs and CRCs reformulated on the basis of the visions of the new curriculum have to be functioned at the block and panchayat level.

6.2.8 School and Regional Community

Parent Teacher Association (PTA) is the only statutory body that exists in connection with a school. School development committee and school resource group are active nowadays. If the concept of neighbourhood school is to become a reality, they should also be given statutory status. The school development committee is the vital link that connects the school with local self government institutions.

6.2.9 Students and Democracy

Democratic forums by students are relatively weak in schools. Balasabha in primary schools and school parliament in high schools and higher secondary schools should be given more opportunities to be active. In monitoring the functions of a school activities of the parliament can also be considered. School parliaments should not be focused on a class leader or the school leader. It would be desirable to form a class council of ministers which that upholds the spirit of collective leadership.

6.2.10 Mid-Day Meal

The need for extending the mid-day meal

scheme to higher secondary level is being discussed. All needy students should be provided with diverse and nutritious food. It is also important to have dining halls where students can sit together and have their food. The idea of teachers and students having food together from the school and those who can pay for their lunch can pay can also be thought of.

6.2.11 School Fests

The excess of different school festivals like secondary, higher secondary, vocational higher secondary and technical schools should be avoided. They can be combined as a single festival. Festivals for the lower primary level need only be conducted at panchayat level and upper primary level and other levels can have block level and revenue district level festivals respectively. These festivals, if possible, can be conducted during vacation time. Arts, sports and work experience, science, social science and literature are part of the curriculum and hence the festivals should be conducted in connection with the learning process. It is an unhealthy trend to make festivals an occasion for mere competition. Prominence is to be given for gaining training in respective fields and sharing of excellence.

6.2.12 Examinations

The systems for conducting examinations in accordance with the new curriculum are not yet operational. Evaluation methods to be implemented must be formulated locally and this must be followed from state level to local level and there must be responsible officials for this in every district. The procedure for recording the same should not be complicated and students must be able to obtain feedbacks and the activities

aiming at creating awareness to the common public about the new valuation method must also be carried out simultaneously. Parental education must become a regular feature. The public examinations conducted by different boards should be brought under a unified board and faculty of all subjects should be there with the board. In a system that focuses on continuous evaluation, only one or two public examinations are needed (X, XII).

6.2.13 Monitoring

Giving proper direction is real monitoring. Monitoring is a process that extends right from the beginning to the culminating point of curriculum execution. The responsibility of school level monitoring is entrusted to the headmaster of the school. Lower level monitoring can only be strengthened by setting the headmasters free from charge of classrooms. CRCs, Panchayat education officer, BRCs, officials at different levels, panchayat authorities, AEOs, DEOs, faculty members of DIETs and DDEs are to perform monitoring at different stages. Monitoring reports should be analysed at different levels every month. Monitoring should also be teacher-friendly.

6.2.14 Teacher Education

In the context of a comprehensible curriculum revision the chief factor in improving the quality of education is having a total reform in teacher education. Teacher education must be responsive to the changing demands of school education system. Pre-service teacher education and the in-service teacher training programmes need to be redesigned. A crucial transition has to

take place in the role of the teacher. Tomorrow's teacher is not the centre of all the knowledge. He/she functions primarily as a motivator and guide in helping the children transform information to knowledge. He/she extends continuous scaffolding to the learners in achieving the curriculum objectives. There should be changes in teacher education in accordance with the changed perspective.

- The fact that learner can construct knowledge has not been assimilated properly in teacher education. The teacher trainee continues to be an obedient recipient of knowledge. He/she is destined to listen to long lectures on the nature of the learner and different methods of teaching. Experimental pedagogy should be implemented at first in teacher education.
- The present situation is that the reforms in teacher education lag behind school curriculum reform efforts. Teacher education should be the field that incorporates the latest trends in education with a critical approach. It is only after familiarizing the latest trends in education to the future teachers that they should be implemented in the schools. Teacher education centres should be dynamic. The role of SCERT should be ensured in developing the curriculum for teacher education in order to establish its relation with the school curriculum.
- The methodology in teacher education programme should lay stress on experimental activities that construct a new insights in pedagogy. It is only by constructing new forms of

knowledge and by renewing the entire system that professionalism can be brought in to this field.

- Democracy in classrooms is an important element in teacher education programme. There is a general tendency to intimidate learners and suppress their creativity and liberty in the name of internal assessment. The teacher trainee should be able to critically analyse the educational process that he/she goes through. They should be given the chance to evaluate their trainers. There should be opportunities to evaluate the teacher trainee during practice teaching and this should be natural and democratic.

Evaluation in teacher education should be transparent and democratic. The teacher trainee should be able to react democratically to the internal assessment programme and should possess the rights to get sufficient explanation regarding it, if necessary. The board of examination that is entrusted with practical examination should be given the opportunity to evaluate all the programmes and trainers in the institution. Institutions could be given the liberty to develop novel techniques in evaluation. New methods of evaluation could be developed by blending organically the self-evaluation of teacher trainees, peer evaluation and the evaluation of the trainer.

The evolution of Information Technology had general impact on the educational process and specific impact on teacher education. In teacher education, the use of IT is of supplementary nature. For instance, providing opportunities for reading from a computer screen, instead

of reading from a book. This does not make the use of IT indispensable. The use of computers should be of complementary nature. The process of learning has to be designed in such a fashion that when a particular stage is reached it won't be possible to proceed any further without the help of IT. In order to develop such processes, all teacher trainers should get in-depth training in the use of ICT.

6.2.15 Reforms in In-Service Teacher Training

In-service training for teachers serves as the source that brings in changes that are in concurrence with the curriculum reforms that take place from time to time. It maintains the research aptitude, technical excellence and professional updating of the teachers.

There are different agencies in Kerala that provide in-service training. Several days are dedicated for this every year. Still, we find a lot of unscientific methods and confusions in the field. There is no convergence among the agencies in organizing programmes, monitoring them or in holding follow-up programmes. The yardstick to measure the quality of in-service training is to check if it serves the needs of the teachers. Scientific studies are not conducted to identify the training needs of the teachers.

When the teachers stay away from schools for longer periods in order to undergo training, it creates a lot of difficulties back at the school. To overcome this, a phase of training can be conducted during the summer holidays

every year. After the completion of a particular period of service all teachers have to undergo a training programme of one month duration.

Long-term in-service teacher training programmes could be conducted only through distance education. Teachers should be encouraged to take part in these. Monitoring and follow-up could be done making use of the strategies of the distance mode of learning.

Teacher educators and teacher training institutions stay away from in-service training programmes. Their participation in such programmes must be ensured.

An annual calendar for in-service teacher training converging different agencies should be prepared. The selection of trainers, the duration of training period, its monitoring and follow-up should be continuously evaluated and improved.

Along with in-service training, there should be facilities to achieve higher degrees.

In the primary level, there are teachers who have not received pre-service teacher education. These are language teachers who teach Hindi, Sanskrit, Urdu and Arabic. Those who are in the service should be given in-service training. Instead of examinations conducted by the DPI for the teachers of these languages, teacher education programmes in the model of TTC should be conducted for two years. The siksha visharad and siksha satri courses should be restructured in order to match the teacher education curriculum in Kerala. An expert committee has to be constituted for this.

Appendix

The Process of Curriculum Framing

The process of curriculum framing is envisioned in a democratic manner. Large scale action programmes that are related to the development of Kerala have been designed. There are opportunities for social activist, educationists, teachers, people's representatives, officials in the education department and cultural activists to supplement the ideas put forward in the curriculum draft. The nature of discussions were published in the website and transparency in the reform process has been ensured. Discussions on the draft curriculum have been held even at school and panchayat levels. Media also reflected the nature of discussions that have taken place in Kerala society. Incorporating all relevant suggestions an open and transparent approach has been taken in formulating the curriculum.

The details are given below:

The Course of Curriculum Revision

Based on the National Curriculum Framework 2005, efforts to revise the Kerala School Curriculum began in August, 2006. The first phase of the revision process is culminated by the publication of the Kerala Curriculum Framework 2007. It has been made a reality through the process detailed below.

- The plan of action for curriculum revision was prepared and was subject to the consideration of the NCERT and the Kerala State Government.
- The Malayalam version of National Curriculum Framework 2005 was printed and distributed.
- A two-day workshop comprising curriculum committee members, experts in the field of education, representatives of the state advisory committee for education and SCERT faculty was conducted to form the plan of action. 14 subject areas were fixed and 14 subject groups were formed. A 30-member core group and 14 focus groups with 230 members were proposed to be formed.
- The first meeting of the core group that was formed by the Kerala Government was held at SCERT. A combined workshop for all the 14 focus groups was planned. The curriculum revision process was sanctioned.
- A three-day workshop was conducted, including the focus group members and the core group members. The participants could familiarize themselves with NCF 2005, collect observations, fix the educational needs of Kerala, decide the mode of operation of the focus groups and analyze the curriculum. Dr. M. A. Khadar, the head of the curriculum group of the NCERT, Dr. Anita Rampal, from the curriculum division of Delhi University and Dr. Manjula Rao from the evaluation department of the Regional Institute of Education attended the workshop.

- The activities of the focus group were centred on the DIETs of all the fourteen districts. In order to discuss the curriculum revision programme, DIET principals, DDEs, representatives from local self government bodies, representatives of SSAs, SCERT faculty and DPI held meetings and seminars to form opinions at the district level.
- 14 district level seminars were organized by DIETs and local self-government bodies.
- A three-day workshop was organized to form a general approach for curriculum revision.
- A three-day seminar was organized for a detailed study of the problems in different fields.
- A meeting of DIET principals was held to unify the district level activities.
- A web portal titled *www.kerala.gov.in* was formed to facilitate interaction with the public.
- The focus group conducted a detailed study for two months in all the 14 districts under the leadership of the DIETs. 14 position papers were formed after school visits and surveys to evaluate different textbooks and learning materials.
- An interim evaluation of the activities of the focus groups was conducted.
- The position papers were brought for discussion in a three-day workshop attended by curriculum committee members and the members of the core group.
- Based on the suggestions in the position papers, the Kerala Curriculum Framework was formed.
- This Framework was presented for discussion and approval before the Kerala society. As a part of this, the main suggestions therein were presented at the district, panchayath, municipality and school levels. The suggestions made in these discussions have been consolidated at the district and state levels. On the basis of these suggestions as well the curriculum framework was prepared. We have to now take up the framing of the syllabus up to the 12th standard, the preparation of learning materials, try-out, preparing teachers to use the new materials and make structural reforms.





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