CHAPTER NO I

DEVELOPMENT OF THE PROBLEM
This Chapter consists of the followings points:

1.1. Nature of the intra-cultural differences.
1.2. Format of the Present Study.
1.3. Title of the problem.
1.4. Assumptions, Limitations and Delimitations of the study.

1.1 Nature of the intra-cultural differences:

Intra-cultural differences can be studied from the following points of view:

1.1.1. Technological
1.1.2. Cultural
1.1.3. Educational
1.1.4. Psychological

1.1.1. Technological point of view:

This is the age of innovations. We are progressing very fast towards the twenty-first century due to technological explosion and diffusion that has taken place during the last few decades. Man has already stepped on the moon. He has started his experiments in space. There are many space laboratories set up by the progressive countries like U.S.A., U.K., U.S.S.R. etc. Even India has sent her satellites in space, e.g. INSAT A, INSAT D etc which are being used for educational purposes to cater for the needs of millions of students simultaneously.
Man is aspiring to visit different planets like Mars, Jupiter etc. and to develop inter-planetary communication. There are many satellites working in space through which researches are conducted. With the help of such satellites we, in India can watch live telecast of cricket matches that are played abroad on the T.V. set at home. Even telecommunication has become easier through this media. We can contact our friends in America within a few minutes. Thus technological advancement has brought the world closer.

At present we are using satellites for educational purposes. Lessons are conducted daily through country wide programmes for the whole of the nation simultaneously. Because of this we can reach millions of students at the same time. We can make the services of the experts available to these students through this media.

1.1.1.1. We find that the technological diffusion is at its peak in the advanced countries. Semi-advanced countries like India are trying to catch up with this progress that has been made in these advanced countries. And all other Afro-asian countries are lagging far behind in this respect.
1.1.1.2. Similarly we find these three levels in India also. Though India is making technological and industrial progress, still the progress is not even throughout the country. It is more in cities i.e. urban areas. There are few cities like Bombay, Calcutta, Bangalore etc., that are pockets of industrial development. These cities are technologically advanced whereas technological development is less in villages i.e. rural areas and technological development is the least in tribal areas or adivasi areas.

In urban areas we find that urban population is familiar with technological equipments. The life index of these people is high, hence the standard of living is also much better. There are many educational institutions which give basic education and special education too. Different electronic and technological equipments are used for different purposes. Many means of communication are also used in these areas, thus communication has been very easy. Means of transport are also easily available, hence the students in these areas are acquainted with this technological advancement which leads to better cognitive development of the individuals living in the cities.
Nearly 2/3 of population of India lives in rural areas where agriculture is the main occupation. These people are not much acquainted with these technological advancements. The people in these areas still follow the age old traditional methods of cultivation. Due to blind faith and old traditions they are not willing to bring about changes in their lives. Illiteracy is also an additional factor which has become a hindrance to their development.

Adivasi people are more backward than the rural population. These people live in remote places. They don't get chances to communicate with the people in other areas. They are unaware of the advancements taking place in cities and in villages. These people are more orthodox. They stick to their traditions and are not prepared to bring about any change in themselves. They try to live an isolated life, away from urban and rural areas. Hence technological development is the least in these areas.

Thus there are three levels of technological development represented by three groups viz - Urban, Rural & Adivasi groups.

Let us work out the differences between these three groups from cultural point of view.
1.1.2. Cultural point of view:—

Krech, Crutchfield and Ballacby (1962) define culture, "The culture of a people consists of their distinctive modal patterns of behavior and the underlying regulatory beliefs, values, norms and premises." This definition of culture describes stable patterns of behavior with respect to the ways of thinking (cognition), the ways of feeling (affective) and the ways of work (Conation). Hence culture is an interaction of cognition, connation and affective domain. By cognition we mean intelligence or thinking process which leads to knowledge. Conation relates to the skill which a person possesses. Affective domain refers to emotions, feelings which are connected with traditions, beliefs, values, norms etc. Thus all cultural patterns are related to every aspect of human life within an identifiable and relatively homogeneous group of people.

1.1.2.1. India has got an ancient cultural heritage which consists of so many sub-cultural groups with respect to customs and traditions. The core of Indian culture remaining the same, there are so many sub-groups varying from each other because of ecological factors like language, geographical conditions, religion etc..
If the above mentioned points are considered the following groups differ with each other due to the difference in their culture. 1.1.2.2. In urban areas people try to imitate the style of foreigners with respect to the way of living which is reflected in their behavior. Due to urbanization and industrialization people in this area possess skills in different fields. Parents are very much careful about the scholastic performance of their children and hence students are having strong achievement motivation. 1.1.2.3. But in rural areas people are generally occupied in agriculture. Agriculture being the main family occupation all the members of the family even children, are engaged in it. They still have a joint family system. Hence people in these areas are emotionally close to each other. People and their children have a somewhat indifferent attitude towards education. 1.1.2.4. Adivasi areas are away from both these areas. They live an isolated life. Some of them live a nomadic life. Some are aboriginal. Hence the life style of these people is completely different from that of urban and rural people. They live a rigid and restricted life and hence they have a completely indifferent attitude towards education.
1.1.2.5. According to the census of 1981 these areas are defined as follows:

Urban areas:

(a) All the places having a municipal body, municipal corporation, cantonment board or notified town area committee.

(b) Other places having the following characteristics —

[i] Minimum population of 5000

[ii] At least 75% of the male working population engaged in non-agricultural pursuit.

[iii] Density of population at least 400 persons per k.m. (1000 persons per sq. mile)

Rural areas:

Criterion which is not applicable to urban area or the area other than urban area mentioned above. Hence it can be described as follows:

(a) Any area which is not within the limits of the Municipal Corporation or municipal area or under a town committee or a notified Area committee, or a Cantonment board.
(b) Area possessing the following characteristics:

[i] Population less than 5000

[ii] 3/4 of the male working population engaged in agricultural pursuit.

[iii] A density of population less than 400 persons per k.m. (less than 1000 persons per sq. mile)

Tribal areas: (Adivasi area)

Scheduled Tribes:

They include all the aboriginal and hill tribes of India. The nomadic tribes are those which have no permanent house and those who roam in the country from one area to another in search of food or employment.

A social group though backward in nature is having a definite area, dialect, cultural homogeneity and unifying social organisation.

Thus the above mentioned three groups represent three cultural levels, high, medium and low that are found in Indian society.
1.1.3. Educational point of view:

If the three areas viz, urban, rural, and adivasi are considered from an educational point of view, students show different achievements in their scholastic subjects. Generally, the progress of the children is measured by their progress in scholastic subjects. This progress of course depends on the cognitive development which on the other hand is affected by the culture in which the child is brought up. The school which shows good results at the S.S.C. level is known as the best school.
1.1.3.1. The difference in the achievements are reflected in the results at S.S.C. which is quite evident in the following table:

**S.S.C. Results**

[Table No. 1.1]

<table>
<thead>
<tr>
<th>Year</th>
<th>S.S.C.Board</th>
<th>Poona</th>
<th>Nagpur</th>
<th>A’bad</th>
<th>Bombay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>50.37</td>
<td>54.34</td>
<td>41.00</td>
<td>47.97</td>
<td>-------</td>
</tr>
<tr>
<td>1982</td>
<td>47.25</td>
<td>51.34</td>
<td>38.84</td>
<td>45.00</td>
<td>-------</td>
</tr>
<tr>
<td>1983</td>
<td>47.34</td>
<td>52.76</td>
<td>37.61</td>
<td>38.43</td>
<td>-------</td>
</tr>
<tr>
<td>1984</td>
<td>51.06</td>
<td>54.48</td>
<td>44.84</td>
<td>46.52</td>
<td>-------</td>
</tr>
<tr>
<td>1985</td>
<td>47.98</td>
<td>51.51</td>
<td>39.80</td>
<td>44.59</td>
<td>-------</td>
</tr>
<tr>
<td>1986</td>
<td>40.26</td>
<td>42.44</td>
<td>30.47</td>
<td>30.71</td>
<td>52.81</td>
</tr>
<tr>
<td>1987</td>
<td>44.68</td>
<td>46.39</td>
<td>37.49</td>
<td>40.06</td>
<td>53.63</td>
</tr>
<tr>
<td>1988</td>
<td>40.99</td>
<td>41.74</td>
<td>32.46</td>
<td>37.90</td>
<td>52.71</td>
</tr>
<tr>
<td>1989</td>
<td>35.87</td>
<td>35.68</td>
<td>29.36</td>
<td>35.79</td>
<td>44.44</td>
</tr>
<tr>
<td>1990</td>
<td>40.85</td>
<td>42.07</td>
<td>33.02</td>
<td>37.03</td>
<td>51.68</td>
</tr>
</tbody>
</table>

The table shown above gives a clear picture of the school children at S.S.C. level in Maharashtra State.

1.1.3.2. If these results are compared it can be said that the achievements of the children belonging to Bombay and Poona are considerably better than those of Nagpur and Aurangabad. The achievements of these areas viz, Nagpur and Aurangabad are poor because the areas included under these sections are backward as compared to the areas of Bombay and Poona.
The children in the cities of Bombay and Poona are well equipped with many things. They have better facilities for learning. The environment in which they live is educationally healthy to give better educational experience. Even schools can provide different modern educational aids to facilitate better understanding on the part of the students.

1.1.3.3. This is not found in rural and adivasi areas. Rural areas may have effect of urban behavior as they are close to these areas. But they cannot provide all the necessary equipments to enrich the knowledge of the students. Schools as well as the society cannot facilitate education in these areas as they do in urban areas. Hence the students can not show as good achievements as they show in urban areas.

In adivasi areas there is a first learner generation coming in the school. The student first of all has to get accommodated to the learning situation. He does not have an encouraging atmosphere at home. Due to isolated life the people in this area have to change a lot, which will take a much longer period. This will be done only through education. Due to such disappointing factors students show backwardness in their achievements in school subjects.

Thus the three areas i.e. urban, rural and adivasi differ from each other in these three aspects i.e. Technology, Culture and Education.
Among these groups, urban areas are more advanced, rural areas are less advanced and adivasi areas as compared with the other two are least advanced in every respect.

Hence these groups are selected for intra-cultural comparison in this study. It will be interesting to know the characteristics of the three groups and to study how they differ from each other.

India having accepted the creed of democracy which implies equality in all respects among its people, demands that progress should be made evenly all among the sectors of the Indian society i.e. urban, rural and adivasi.

For such advancement India needs more scientists and experts in diversified fields. This need of the hour should be met by the coming new generation, which will be fostered in schools. Hence Kothari Commission has rightly pointed out, "Destiny of India is being shaped in her class-rooms".

It is the responsibility of the educational system to propagate education in such a way that future developing and immature students will turn into good scientists and experts. Hence it is the duty of the present teacher to train the future generation with respect to produce scientists and experts in different fields. For this purpose the teacher must know the factors that need to be manipulated, which will lead to better growth on the part of the students.
1.1.4. Psychological point of view :-

1.1.4.1. Piaget and his associates have conducted researches on cognitive development. From the immense evidences on the basis of which Piaget generalizes four causative factors that lead to cognitive development. They are heredity, environment, culture and equilibrium. Cognitive development of the child depends upon environmental and cultural factors which could be modified to accelerate cognitive development.

1.1.4.2. Piaget, an interactionist, gives an interaction model. According to him the development of intelligence is the result of interaction between an individual’s maturation and his or her social environment. Cognitive development takes place by the means of two processes i.e. assimilation and accommodation. Assimilation is absorption of similar experiences whereas accommodation is organisation of new experiences in relation to the old ones.

1.1.4.3. According to Piaget there are three stages of development. 1. Pre operational stage 2. Concrete operational stage and 3. Formal operational stage. First stage is the early stage of development which starts from the birth upto seven years of age. During this stage, sensory motor operations take place. But concrete operational stage is the stage at which the child thinks in concrete terms with the help of objects.
By formal operational stage the child can perform all the sixteen binary operations and exhibits INRC group. The child is able to think in abstract terms without any concrete objects.

1.1.4.4. The transition from concrete operational to formal operational group takes place at about 11, and the child begins to think in abstract terms. Hence this age group is selected for this study. The purposeful attempt of this study is to exploit his thinking ability for the enhancement of learning.

1.1.4.5. Piaget has explained four causative factors that lead to cognitive development. Out of which, Bruner has selected one of the factors i.e. culture to study the development of cognitive growth and has conducted researches regarding this factor in Senegal in mid-west of Africa. He has produced evidences regarding cultural factors and its role played in the cognitive growth. On the basis of the evidences of his researches, Bruner concludes, "Schooling is the single most crucial variable, which makes differences in the direction of cognitive development" (Bruner, 1966)

1.1.4.6. Out of these researches, Bruner has developed his theory of Instrumental Conceptualization having more emphasis on three modes of representation. viz, enactive mode of representation which involves action; ikonic mode of representation which involves figures or pictures and symbolic mode of representation which involves words or symbols.
1.1.4.7. On similar lines with those of Bruner, Soman (1979) has conducted cross-cultural research dealing with Indian urban, Indian rural and British children at higher formal operational stage i.e. 15. He has used schooling as a crucial variable for the cause of cognitive development. He has used interaction of three modes as proposed by Bruner for the development of instructional material.

1.1.4.8. The present study is an intra-cultural study dealing with three areas, i.e. urban, rural and adivasi, on the basis of technological development and tries to investigate the levels of cognitive development in these areas.

This study goes a step further and uses schooling as a crucial variable for the cause of cognitive development and tries to manipulate the effects of three educational programmes on the cognitive as well as environmental development of the children of lower formal operational group, i.e. age 11+, belonging to these areas.
1.2 Format of the Present Study

This part of the study includes the following points:

1.2.1. Selection of three groups.

1.2.2. Selection of the subject

1.2.1. Selection of the three groups:

As discussed earlier in this chapter three groups are selected for this study, viz; Urban group, rural group and adivasi group.

To represent the urban group, children from Pune city will be selected.

For the representation of the rural area children from villages near Saswad will be selected.

Children from Kosbad, Thane district., will be selected as adivasi sample.

1.2.2. Selection of subject:

From the point of view of cognitive development of the children and development of the technology, mathematics and science are the basic subjects which should be taken into consideration. Hence mathematics was selected as the content matter for the programme.

Hence three programmes; based on three different modes of representation, as proposed by Bruner will be prepared on each mode, separately, and their effects on above groups will be compared.
1.3 Title of the problem:

"An intra-cultural study comparing the relative effectiveness of three instructional programmes based on three different modes of representation mode as proposed by Bruner on the acquisition of mathematical concept by children of age 11+ belonging to different socio-cultural groups in Maharashtra."

1.4 Assumptions, Limitations and delimitations of the study:

1.4.1. Assumptions:

Following assumptions are made for the study:

(1) Students characteristics are common and alike in urban rural and adivasi areas. They can learn equally well through three different modes of representation effectively.

(2) Cultural differences are reflected in the scholastic performances of the children and these differences in scholastic achievements could be nullified by using different methods of teaching.
1.4.2. Limitations and delimitations :-

Due to restricted resources of time and money at the disposal, the attention was restricted upto two districts only, i.e. Pune district for urban and rural area and Thane district for adivasi area.

For urban area children from Pune city will be selected.

For rural area children from the villages near Saswad, i.e. Pune district will be selected.

For adivasi area children from Kosbad, Thane district will be selected.

1.4.3. Definitions :-

Some of the definitions of the terms used in the study are as follows :-

1.4.3.1. AREA :-

A. Adivasi group - Groups consisting of students coming from Kosbad.

R. Rural groups - Groups consisting of students coming from the villages near Saswad i.e. Hivare, Bopgaon.

U. Urban groups - Groups consisting of students coming from Pune city.
1.4.3.2. METHODS :- (Programme)

E. Programme using enactive mode of representation, in the form of action.

I. Programme using ikonic mode of representation in the form of figure.

S. Programme using symbolic mode of representation in the form of words or symbols.