CHAPTER III

RATIONALE FOR THE STUDY
III. RATIONALE FOR THE STUDY

This section presents a rationale for the study, its major objectives, the considerations that guided the selection of tasks, and finally the major hypotheses related to this piece of research.

Rationale for the Study

It should have become evident from the review of literature that bilingualism no more exists as a unitary and global concept. Indeed, the entire base of bilingual research has been broadened and subdivided. Researchers have moved away from a simple same-different conceptualization of the bilingual-unilingual distinction to examining the distinctions within the bilingual population itself.

Unlike the early research propositions pertaining to either positive or negative consequences of bilingualism, the current interest argues in favour of examining its effect with reference to the conditions of the bilingual environment. It has by now become relatively clearer that bilingualism of all forms and across all social contexts may not produce the same pattern of results, because of the presence of many other factors that are extrinsic to but covary with bilingualism. Since bilingualism continues to be a fact of life and its
interactive relationship with other factors in the naturalistic settings are very often impossible to avoid, one of the ways of explicating its many diverse aspects is to accumulate evidence from different cultures and environments. The present work is one of such modest research attempts.

Bilingualism has been a topic of concern for social scientists in different parts of the world, from Canada to Malaysia, Ireland to South Africa (Hornby, 1977), but nowhere else does the problem assume such great social significance as in India where there are many official languages, and many more dialects and subdialects spoken by a large number of people. Above all, India is a country of unity in many diversities. Its people share the social, political and economic milieu of the land and at the same time believe in several different religions, live in diverse cultures, and practise a wide range of social norms, values, institutions and so on. All these diversities in their living environment both directly or indirectly influence their linguistic status as unilinguals, bilinguals or multilinguals.

Thus, the cultural and linguistic environment in this subcontinent provides a unique natural laboratory for studying the effects of bilingualism both in interaction with and in isolation from many other cultural and
environmental factors. Unfortunately, compared to the impressive and extensive array of evidence obtained from different parts of the world, research attempts in an inherently multilingual society like India are meagre. Excepting a few studies conducted at the central Institute of Indian Languages (Annamalai, 1980), and by Mohanty and his associates (Mohanty, 1982a,b; Mohanty, 1986; Mohanty & Babu, 1983; Mohanty & Das, 1987; Mohanty, Pattanaik & Babu, 1981) the phenomenon of bilingualism, especially with respect to its effects on the cognitive, metalinguistic and academic skills of the language user, has not been seriously explored.

The question of whether the bilingual is cognitively different from the unilingual has been an issue of long standing interest. In examining this issue, most of the earlier studies and some of the later ones suffered the limitations of methodological inadequacy often pertaining to testing devices and criterion of sample selection. Many confounding sources of variations which are presently recognized in the bilingual research often tended to be ignored. The review of literature suggests some general directions in the field of research pertaining to bilingualism and cognition. Some of these can be stated as follows:

1. Comparison of bilingual and unilingual groups should be made keeping the major socio-demographic
characteristics of both the groups relatively homogeneous.

2. The nature of bilingualism should also be considered and described as an important dimension of any study on this problem.

3. Effect of bilingualism should be viewed in terms of specific socio-cultural, political and linguistic context so that besides some general awareness about the consequences of bilingualism, several specific effects may be outlined. Such studies will help bridging the gap between the theory and practice of bilingual education.

4. The bilingual and the unilingual groups should be compared in terms of their performance characteristics on a large battery of cognitive, metalinguistic and achievement measures so as to characterize the wider range of bilingual's intellectual functioning and the pattern of interrelationships among the many different and distinct aspects of cognition as a function of increasing bilingual experience.

5. Research in the field of bilingualism and cognition should not only examine bilingual competence from any ability oriented perspective but also from an information processing perspective to find out the characteristic ways by which bilinguals process and
integrate information compared to their unilingual counterparts.

6. Effects of bilingualism should be viewed from a life-span developmental perspective so that a general picture about the long-term effects on bilingualism may be outlined.

7. The ultimate goal of any educational policy making is to promote high level of academic achievement. Bilingualism should, therefore, be considered in respect of its effects on academic achievement under different socio-cultural contexts.

In the present study an attempt is made to address to some of these issues raised above. As would be evident from the description of its sample characteristics, both the bilingual and unilingual samples were drawn from relatively homogeneous sociodemographic background. The nature of bilingualism investigated was that of a coordinate type. Since both the bilingual and unilingual groups shared a common culture, any effect of bilingualism that may emerge from this study would not be confounded with the effects of biculturalism.

The inclusion of a large battery of measures consisting of cognitive, metalinguistic and achievement tests would hopefully tap a wider range of bilingual intellectual functioning. Furthermore, following the
framework of a process oriented perspective an attempt has been made to incorporate into the cognitive battery some tests of simultaneous and successive processing to find out how efficiently do bilinguals integrate information compared to the unilinguals.

Bilingual competence changes throughout the period of acquisition. Depending upon the changing requirements in social and educational context, there may be significant changes in the effects of bilingualism. In view of these effects, bilingualism needs to be examined from a developmental point of view. The present study, therefore, included the bilingual and unilingual groups from three distinct age brackets coming in the age range of 7 to 12.

One of the most important practical contributions of the present study lies in examining how bilinguals compared to unilinguals perform in respect of their academic achievement in schools. On the whole the present study seeks to investigate the varied aspects of bilingualism in a unique natural setting, keeping in view the major problems and issues raised in earlier research.

Objectives

The objectives of the present study were:

1. To examine whether or not linguistic status (unilingualism vrs. bilingualism) influences the rate and course of cognitive development in tribal
children as measured by tests of intelligence, memory, verbal-logical reasoning and Piagetian concrete operational thinking.

2. To find out the influence of bilingualism on the development of coding processes such as simultaneous and successive processing.

3. To examine the nature of differences which may exist between unilingual and bilingual tribal children with respect to their awareness about structure and functions of language as measured by a set of metalinguistic tests.

4. To find out whether or not there exist significant differences between unilingual and bilingual tribal children in respect of their achievement in school subjects at each of the grade levels of two, four and six.

5. To examine the interactive effects of linguistic status and grade on the development of cognitive skills and metalinguistic awareness.

6. To study the pattern of relationships among various cognitive-developmental, metalinguistic and school achievement measures as a function of linguistic status and grade level of the subjects.

Choice of Tasks

The study proposed to investigate the development
of cognitive, metalinguistic and academic skills as a function of bilingual experience. Accordingly some tasks which have been used in the literature and some modified versions of those to suit the demands of tribal ecocultural setting were selected. The following considerations guided the selection of the tests for this study.

1. The tasks which have been established as valid measures of intellectual functioning in the developmental literature were used. Accordingly, the Raven's Coloured Progressive Matrices Test was selected. The inclusion of some Piagetian tasks was considered necessary as they tap certain fundamental aspects of cognition and reflect a more general pattern of thinking according to Piagetian theory.

2. Since the study proposed to examine the influence of bilingualism on some memory and problem-solving skills, some tasks measuring these skills were also included. The syllogistic Reasoning Task reflected context-independent thinking, the clustering in Free Recall and the Serial Short-Term Recall of Locations illustrate the use of strategic behaviour in retrieval and memory strategies. These tasks are hoped to tap some cognitive skills which are presumably moulded by
bilingual experience.

3. Since an attempt was made to approach the issue of bilingualism from a process oriented perspective, some tasks which have been shown as measures of individual's coding processes by Das, Kirby and Jarman (1975, 1979) were also included in the battery. Accordingly Figure Copying and Memory for Designs were used as measures of simultaneous processing and Auditory Serial Recall and Digit Span were chosen to tap successive processing.

4. Since the issue of metalinguistic development is intimately connected with bilingual research, some selected and representative tests of metalinguistic skills were also employed in this study. The metalinguistic battery consisted of the following seven tests: (a) Rhyme Recognition Test, (b) Test of Knowledge of Appropriateness of Utterance, (c) Test of Correction of other's speech, (d) Meaning and Referent Relationship Tasks, (e) Symbol Substitution Test (f) Test of Arbitrariness of Language use, and (g) Word creation Test.

These tests are standard measures of metalinguistic ability representing its several different aspects. The first four of these tests have been developed and used on bilingual and unilingual
children in Orissa (Babu, 1980; Mohanty & Mohanty, 1980; Mohanty & Patnaik, 1980; Mohanty, Patnaik & Babu, 1981). Three of these seven tests namely Meaning and Referent Relationship Task, Symbol Substitution Test and Test of Arbitrariness of language were originally developed by Osherson and Markman (1975) and modified by Cummins (1978) as standardized measures of metalinguistic ability. These tests were subsequently adopted into Oriya language and used by Babu (1980) and Mohanty, Patnaik and Babu (1981).

5. Ambiguous sentences provide an excellent context for studying the subject's metalinguistic processes. In view of this, a picture form of Ambiguity Detection Test developed by Mohanty, Patnaik and Babu (1981) was chosen for use in the present study.

6. Data for the educational achievement of the subjects were obtained from two sources. The average school examination marks in the two previous examinations on Mathematics, English, Oriya, General Science and drawing were obtained to provide a valid measure of their academic achievement in schools. Two tests namely Arithmetic Achievement Test and Science Achievement Tests of Primary School children developed and standardized at the center of Advanced Study in Psychology, Utkal University were also used for
studying the level of academic achievement of the subjects. The latter two tests were included in order to check the inter-school variation in the award of examination marks.

**Major Hypotheses**

It is difficult to formulate specific hypothesis for each group and each cognitive skill under investigation. However, certain directions in the results can be specified.

As pointed out in the review, the literature on cognitive effects of bilingualism is far from being conclusive. However, studies in the sixties, seventies and early part of eighties (Ben-zeev, 1972; Cummins & Gulutsan, 1974; Hakuta & Diaz, 1985; Ianco-Worrall, 1972; Peal & Lambert, 1962) found that bilinguals scored significantly ahead of the carefully matched unilinguals on measures of verbal as well as nonverbal intelligence. Bilinguals were also reported to have much more cognitive flexibility, tendency to recall more words and cluster them by semantic categories (Champagnol, 1973; Ervin, 1961a; Palmer, 1972) and an advanced level of performance on Piagetian tests of classification, reclassification and matrix transposition (Ben-zeev, 1972). Bilingualism orients the child towards more abstract thought processes (Vygotsky, 1962) as a result of which the bilinguals learn
to decontextualize their knowledge from concrete referents of language, a skill required for solving syllogistic reasoning problems. On the basis of these studies, the following hypotheses could be formulated:

Hypothesis 1.

It is hypothesized that there would be significant differences between the bilingual and unilingual tribal children in favour of the former on measures of intelligence, semantic clustering in memory, Syllogistic reasoning and Piagetian concrete operational thinking. The main effects of Grade as well as its interaction with linguistic status would also be observed for these cognitive measures. The influence of linguistic status and Grade on control processes in Memory (reflected in the Primary recall scores in the test of Serial Short-term Recall of Locations) would be explored.

Following a process oriented perspective, it has been argued that successive synthesis underlies the processing of contextual grammatical structures while simultaneous synthesis is involved in comprehension of logical grammatical constructions (Caramazza, Gordon, Zurif & Deluca, 1976; Cummins & Das, 1977; Das, Kirby & Jarman, 1979). Considering the nature of these two coding processes, the latter appears to be more compatible with metalinguistic competence on which bilinguals have been shown to be relatively more skilled compared to the
unilinguals. The following hypothesis could be formulated in respect of the two coding processes.

**Hypothesis 2.**

It is expected that bilinguals compared to unilinguals would demonstrate higher level competence in simultaneous processing, while for successive processing bilingual superiority is yet to be explored.

Bilingual research has provided considerable evidence for the existence of an analytic strategy towards language on the part of the bilinguals and some evidence for the generalization of this strategy, which is apparently metalinguistic in nature. It was found that bilinguals, compared to unilinguals, were more adept in certain aspects of linguistic processing, and showed greater awareness about the structures and functions of language (Ben-zeev, 1972; Ianco-Worrall, 1972). Bilingualism was shown to foster metalinguistic competence in children by orienting them to analytical and objective aspects of language. The recent research evidence points in the direction of subtle metalinguistic, academic and intellectual benefits for the bilingual children (Cummins, 1985). With respect to metalinguistic competence the following hypothesis can be formulated.

**Hypothesis 3.**

Bilinguals, compared to unilinguals are expected to perform at a higher level on measures of metalinguistic
competence; for these measures the main effects of Grade and its interaction with linguistic status would be found to be significant.

The review indicated that bilingualism positively affects both intellectual and linguistic processes, which are regarded as the two most essential components of school-related achievement (Ben-Zeev, 1972, 1975; Bialystok, 1984; Bialystok & Ryan, 1985). Having been exposed to more than one language, the bilinguals could view each as one particular system in many, which possibly fostered in them a certain degree of competence for generalization, discrimination and abstraction. The bilingual skills were thus found to be more compatible with the intellectual skills necessary for academic achievement. Although not conclusive, the research evidence revealed subtle intellectual and academic benefits for the bilingual children (Cummins, 1985). The following hypothesis could be stated with respect to bilinguals academic achievement.

Hypothesis 4.

It is expected that bilinguals would be superior to unilinguals in respect of their performance in school-related subjects at the respective Grade levels.