

**A STUDY OF VOCATIONAL PREFERENCES OF
HIGH CREATIVE AND LOW CREATIVE HIGH
SCHOOL TRIBAL PUPILS IN KOHIMA
AND MOKOKCHUNG DISTRICTS,
NAGALAND**

**THESIS SUBMITTED FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY**

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To



**DEPARTMENT OF EDUCATION
SCHOOL OF EDUCATION
UMSHING, MAWKYNROH
NORTH-EASTERN HILL UNIVERSITY
SHILLONG, MEGHALAYA (INDIA)**



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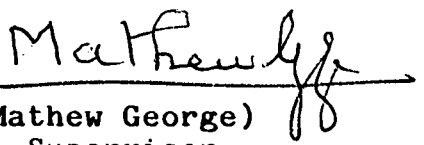
CERTIFICATE

I certify that the thesis entitled "A Study of Vocational Preferences of High Creative and Low Creative High School Tribal Pupils in Kohima and Mokokchung Districts, Nagaland" submitted by H. I. Singh, for the Degree of Doctor of Philosophy of the North-Eastern Hill University, Shillong, embodied the record of original investigation carried out by him. He has been duly registered and the thesis presented is worthy of being considered for the award of the Ph.D. Degree.

This work has not been submitted for any degree of any other University.

SHILLONG

THE 1ST JANUARY 1990.


(Mathew George)
Supervisor

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SHILLONG
THE 1ST JANUARY 1990.

(H. I. SINGH)

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ABBREVIATIONS

HC	High Creative
LC	Low Creative
HCB	High Creative Boys
HCG	High Creative Girls
LCB	Low Creative Boys
LCG	Low Creative Girls
RHCB	Rural High Creative Boys
RHCG	Rural High Creative Girls
UHCB	Urban High Creative Boys
UHCG	Urban High Creative Girls
RLCB	Rural Low Creative Boys
RLCG	Rural Low Creative Girls
ULCB	Urban Low Creative Boys
ULCG	Urban Low Creative Girls
F	Fluency
X	Flexibility
O	Originality
E	Elaboration
C	Composite
NTCT	Nagaland Tests of Creative Thinking
BMTCT	Baqer Mehdi's Tests of Creative Thinking

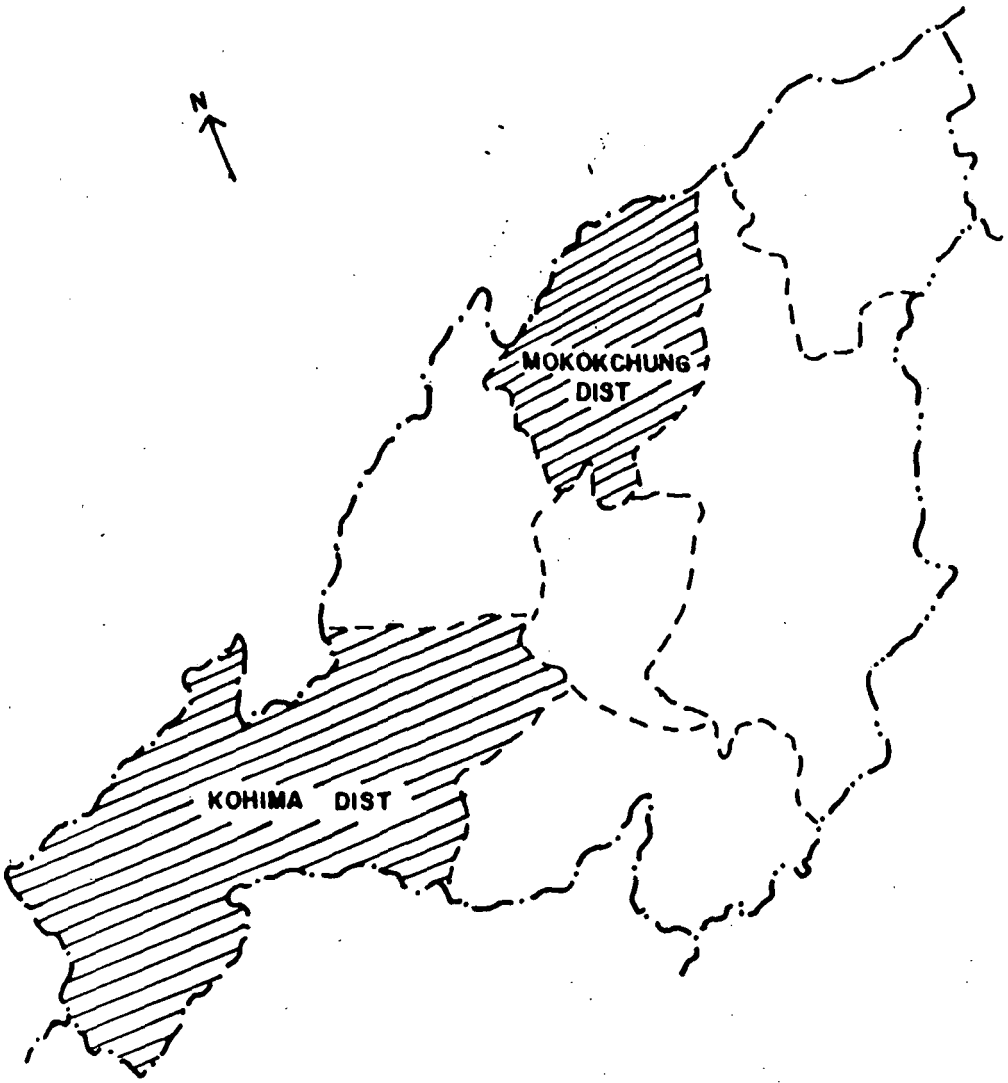
CHAPTER I

BACKGROUND OF THE STUDY

BACKGROUND OF THE STUDY

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LOCATION OF THE PRESENT STUDY
NAGALAND



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BACKGROUND OF THE STUDY

1.0.0. The Present Study

The present study entitled "A Study of Vocational Preferences of High Creative and Low Creative High School Tribal Pupils in Kohima and Mokokchung Districts, Nagaland", is an attempt to unfold a new horizon of understanding among the 'singificant others' of Naga teenagers about their right vocational preferences through the development of their creative thinking power.

The present research report is divided into five chapters. In the first chapter, the theoretical background of the study has been discussed. In the second chapter, review of relevant studies on Creative Thinking and Vocational Preferences has been done. In the third chapter, selection and construction of tools used, statistical techniques employed, selection of sample and procedure followed in data collection have been described. In the fourth chapter, analysis of data and interpretation of the findings have been discussed. In the fifth chapter, conclusions, implications and suggestions of the study have been presented.

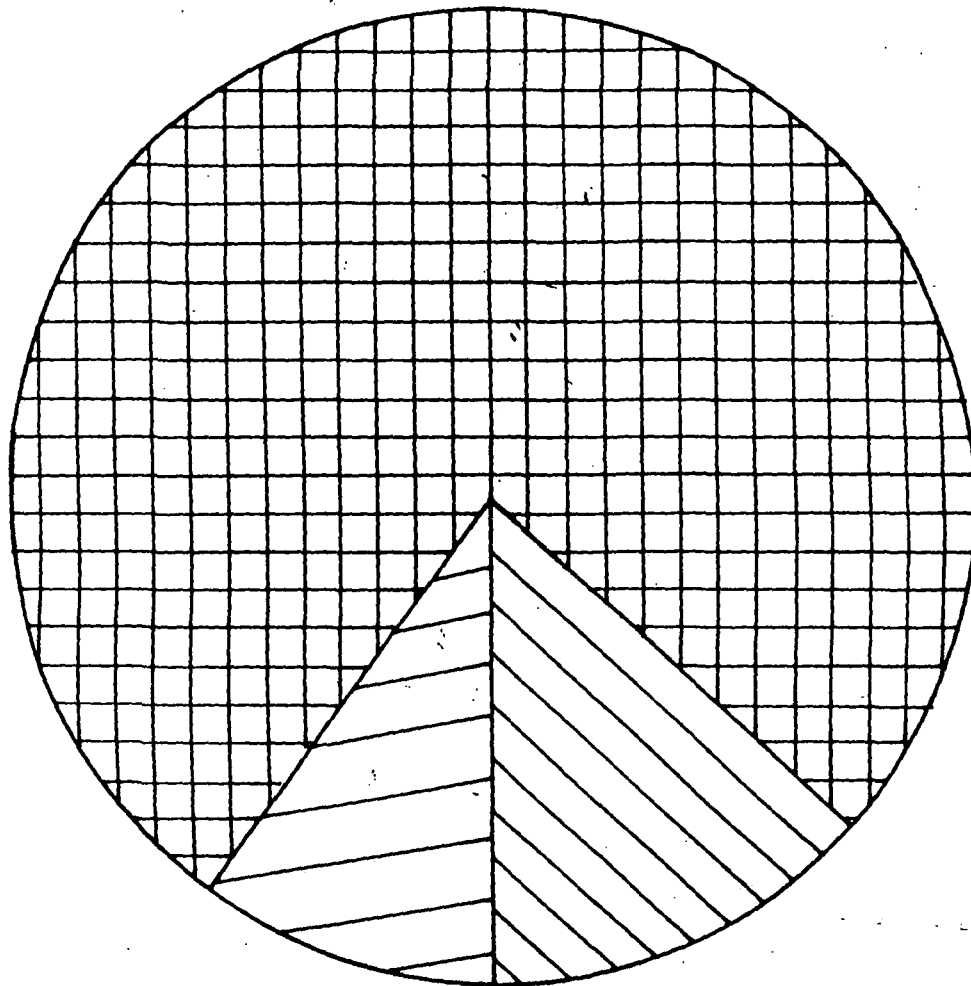
The following chapter speaks about the theoretical background of the study by making an effort to define some of the basic concepts under the captions: The Naga Culture, Creative Thinking and Vocational Preferences.

1.1.0. The Naga Culture

Nagaland, bounded by Burma on the East, Assam on the West, Arunachal Pradesh on the North and Manipur on the South, is the homeland of the culturally rich, festive loving, warlike and kind-hearted group of people called the 'Nagas'. This eastern frontier state of India, became a separate territory in 1963 and a full-fledged state in 1972. Prior to this, it was one of the districts of Assam. The state lies between 25°6' and 27°4' north latitudes and between 93°20' and 95°15' east longitudes.

There are nine districts in the state. Kohima and Mokokchung are the two most developed among them. The bulk of the population is constituted by tribals. Nearly ninety (90%) per cent of the population is rural. Fourteen major tribes dominate the land with the assistance of other sub-tribes in an exemplary style often reflecting the country's lofty ideal of living 'unity in diversity'. The major tribes are, Angami, Ao, Sema, Lotha, Chakhesang, Rengma, Sangtam, Yimchunger, Chang, Konyak, Khamangan, Phom, Zeliang and Kuki. Each tribe has its own dialect. In towns they usually communicate each other through Nagamese: a dialect based on Assamese and Hindi. A number of tribes living together in a composite area normally speak each other's tongue. However, English is regarded as the official language and

PERCENTAGE OF POPULATION
(TOTAL, AO AND ANGAMI)



Total 76.45%

Aos 13.43%

Angamis 10.12%



Fig. 1.1.

medium of instruction from middle school onward in the State.

Agriculture, both terrace and shifting cultivation is the primary basis of agrarian economy of the Naga people. About 72 per cent of the total sown area of the state is under jhum or shifting cultivation. About 79 per cent of the total working force is engaged in agricultural activities. Nowadays, a change that can be seen is that the jhuming cycle has been reduced to 6-8 years instead of 12-15 years as was in practice for the last 50 years.

There are more than a thousand villages in Nagaland. The real political unit of a tribe is the village. Each village has one or more gaonburas depending upon the size and number of Khels (lanes) in the village. Gaonburas (G.B.), treated as representatives of the government, are responsible for day-to-day administration of the villages.

According to 1981 Census, Nagaland has a population of 7,74,930. The two districts - Mokokchung and Kohima has 1,04,193 and 2,50,105 persons respectively. But, in tribal population alone Ao's are more (1,04,118) than the Angami's (78,342). The literacy percentage of Nagaland according to 1981 census is 41.99%. And for Mokokchung and Kohima are 61.78% and 48.94% respectively.

About the origin of the word 'Naga', it is still uncertain - when, how and by whom, the word was first used by meaning 'what about the people'. There are differences of opinions among the elders and scholars about the origin of the word. However, so far, some attempts have been made by scholars from among themselves as well as from outside to define the origin of the word 'Naga'. Among the many theories of origin the most convincing is, the one having a Burmese connection (Shimray, 1988). According to this theory, the Nagas have migrated from Burma to the present hill state. This is supported also by historical facts. The Nagas, men and women, had the tradition of making 'holes in the ears' for their ear decorations. The Burmese called the group of people with holes in the ears as 'Naka'. The Anglicised word for 'Naka' became 'Naga'. The reason for it is that the Britishers first came into contact with the Burmese since 1795 and with the Nagas in 1832. It is, therefore, obvious that the British explorers were informed about the Naka group of people by the Burmese whose movement from Burma to the present hill state they alone knew. Thus it is sensible and practical to believe that the word 'Naga' originated from the Burmese word 'Naka'. From this time on, the Anglicised word 'Naga' came into being in all the historical records left by writers of different times.

The salient points of Naga culture are described in the following sub-sections.

1.1.1. Head-Hunting

In fact, the practice of head-hunting which existed at different times in various regions of the world, usually originated in the superstition that the human head contains the 'Soul-Force'. This was believed to govern the rise and fall of a community and thought to be transferable. The slain man had to belong to a different village if his 'soul-force' was to benefit his killer. An increase in population, cattle or pigs, better crops and other material improvements were believed to demand an accretion of 'soul-force'. When the 'soul-force' diminished, the tribes were prompted to embark on head-hunting expeditions to replenish this intangible asset.

Head-hunting was a part of everyday life of the Nagas, and to a great extent conditioned life in the villages. Successful head-hunters enjoyed the privilege of wearing special dresses and ornaments. They were distinctively tattooed, and accorded with coveted social status. Even in matrimonial matters, successful head-hunters enjoyed an advantage over others. Thus, head-hunting often became a remedy even for youngmen fired by ambition to flaunt special dress and ornaments or to marry a particular maiden. However, inter-villages

and inter-tribal clashes were the main cause as well as effect of head-hunting in those turbulent days. But, this tradition has been subsided for all time in modern Nagaland.

War among the Nagas, as among the civilized nations, is by no means necessarily prefaced by a formal declaration, and more often than not would start by raid or ambush on the part of one of the two villages. However, formal battle, is also another form of war among the Nagas.

1.1.2. Religion

The Nagas by and large are animists. Amongst the Nagas there appears to have a perception that there must be some universal 'cause' to whom all things are indebted for their being. They appear also to acknowledge a 'Divine Power' to be the 'Maker' of the world, and the 'Disposes of all events: They denominate Him the "Great Spirit". Then comes a number of evil spirits, who are ill disposed towards human beings, and to whose malevolent interferences are ascribed to all woes which afflict mankind. To them, therefore, sacrifices must be offered. These malevolent spirits are Sylvan deities, spirits of the trees, the rocks and the streams, and sometimes also of the tribal ancestors.

However, since the embracement of Christianity things have been changed, and animism has been pushed to the back-

ground almost to the extent of disappearance. Now, the state claims that 90% of its people are Christians.

1.1.3. Morung

Morung, the fortress or guard-house or the dormitory of unmarried men, is the real training centre for village youth in those days. Every boy after attaining puberty used to enter the life of morung where they learned various aspects of life in the society. Morung is usually an oval-shaped house which contains cubicles and fire-places where young men pass the night listening to old stories and adventures or learning the art of warfares. The porch of the morung is sometimes opened and sometimes fenced. The main post of the porch has got figurines with striking representatives of tigers, elephants, human figures, lizards, crocodiles, birds etc. Around the walls they used to hang the skulls of the hunted men and trophies of war and skulls of animals as well. But, nowadays, morung has fallen into disuse as a result of Christianity, modern education and civilization in the state.

1.1.4. Education

Since the inception of formal education in Ao areas, the flow of education though not very fast but ceaselessly moving on till today. Much of the credit goes to the American Baptist Missionaries for their relentless works for the

cause of education of the Nagas and, thus enable them to come out of the dark world of ignorance. Education the people along with preaching the gospel, was the method missionaries have wisely opted and, the outcome was wonderful.

Today, perhaps the most spectacular achievement in Nagaland has been in the field of education. At present, the state has 1150 government primary schools, 226 middle schools, 70 high schools, 3 Junior Teacher Training Institutes (JTTIs), 6 colleges (govt.), 1 college of education, 1 agriculture college, and a number of private educational institutions including two polytechnics where training is given on certain trades to the trainees including drop-outs. Quite a good number of local craft centres like handloom or knitting and embroidery for women have been opened through governments initiative in different parts of the state. Besides, there is one University Campus of NEHU at Kohima where instructions are given on five academic disciplines. Works on construction of a central university complex at Lumami (Zuhneboto District) is in progress.

In order to provide academic guidance to primary and middle schools, 2 school complexes have been established. Emphasis has also been given to promoting science and technology in classrooms. Computer literacy programme has been introduced in eight high schools, and it will be extended

to the rest in phased manner. Adult literacy is receiving special attention with about 86,000 adults having benefitted from it since 1977.

In consonance with the 'New Educational Policy' vocational courses have been introduced at the plus two (+2) stage during 1988-89 and, 106 handicapped children have been covered in schools under UNICEF Project.

Now, the literacy rate in the state has been increased from 17.91% in 1961 to 27.40% in 1971 and to 41.99% in 1981. It is expected that the literacy percentage of the state may touch the mark of 50% at the end of 1991 census.

1.1.2. The Angamis

Kohima, the 'Switzerland of the East' and the homeland of the Angami tribe, is the capital town, and one of the seven districts of the state of Nagaland. Kohima commands a majestic landscape. Right in the heart of the town there is the historic war cemetery (World War II) which attracts thousands of tourists every year.

One of the Angami traditions says that they came from Burma and belonged to the Karen group of Burma. They however, split into two groups and, the Angamis turned westward and settled in Nagaland while the Karen turned eastward and settled in Burma. The place of their split is not clearly

known but it is assumed that, it might be possibly at Khezakhenoma. In another tradition, it is said that the tribe has emerged from the bowels of the earth, of course not in their own land, but in some other land to the south of their present habitation. In fact, the name 'Angami' is a corruption of the name 'Gnamei', given to them by the Manipuri kacha Nagas. Earlier people belonged to Angamis group were known by themselves as Tenymia. The name came from two words 'teny' which means 'fore-father' and 'mia', means 'people'. Under the Tenymia group includes Angami, Rengma, Chakhesang, Mao and Zeliang. In another version, it is said that 'Tenymia' applies to those who use 'Kilt' as their cloth and a particular haircut.

Thus, it may be concluded that Angamis came from Burma and halted at Khezakhenoma, from there they moved north westward of Kohima and settled there. From Kohima they dispersed to north, east and west, and of course, south was already occupied by them on their march to Kohima. Since they want to settle there and don't want to go further, Semas called them 'Tsongomi' which means, "who do not want to go further."

1.1.3. The Aos

Aos, one of the Naga tribes, is often described as possessing several peculiar characteristics not found in

any of the other tribes. For instance, Ao custom of disposing of their dead by laying them out on Platforms; their elaborately organised village councils; their claim to have emerged from Longterok near Chongliyimti on the right bank of the Dikhu river; their huge xylophone laboriously hewn out from single logs; their tattooed women folk; their division into language groups so stable that a husband and his wife will at times converse together each in his or her own language; and complicated clan and phratry rights, all distinguish them sharply from their Sema and Lotha neighbours or even from the Angamis.

The name 'Ao' is a current mispronunciation of 'Aor', their own word, meaning "those who came" (i.e. came across the Dikhu river) as distinct from 'Mirir' (those who did not come), the term used for Sangtams, Changs, Phoms and Konyaks. Ao tradition states quite definitely that the ancestors of the tribe came out of the earth at Longterok (six stone), lying on the top of a spur on the right bank of the Dikhu river just about opposite Mokongtsu. The stones are just above the present Sangtam village Chongliyimti.

1.1.4. Cultural Differences Between Aos and Angamis

In fact, similarities are much more than the dissimilarities between the two tribes. Of course, this is also the reason why they became a part of the whole Naga group.

However, some of the differences that could be seen distinctively are specially in dress and ornament, war and weapon, disputes and settlements, marriage and divorce, and appearance and nature. They are briefly discussed below.

1.1.4.1. Dress and Ornaments

Ao menfolk used to wear only loin-cloth and nothing else, and womenfolk wear a short mekhla which hardly come upto knee and nothing for the upper part except the many stringed necklace to partly cover the shapely breast. Angami menfolk's usual dress is a kilt and a wrapper while for womenfolk a mekhla, coarse shawl and apron. Aos and Angamis shalws are different in colour and designs which carry different meanings. In the same way, meklha which is one of the important dresses for womenfolk are of different sizes colour and embroidery works.

Among the many ornaments used by the Aos, the long turf of hair won in the lob of a woman's ear which is the hair from a hunted-head, is hardly seen among the Angamis. Decorations of Ao head-gears and beads of various shape and sizes are different from that of their Angami counterparts. Again, marine-ornaments like sea-shells, conch etc., which are common among the Angamis are not common among the Aos. Another interesting difference found between the two tribes is, an Ao woman invariably except when she bathes,

wears at least one string of beads, night and day. It is only from a corpse that all beads are removed and it is unlucky for a living to imitate the dead in any way. But such tradition, only exacting to the women, is not found among the Angamis.

1.1.4.2. War and Weapon

Most of the weapons used by both the tribes are similar excepting - in shape and size. For example, Ao spears have different shapes and sizes from the Angamis. The same is true in the case of shields or daos. However, it is clear that use of muskets (guns) was not popular among the Aos, in the same way, bows and arrows among the Angamis.

Most of the types of warfares are same except treachery which is practised by the Aos, and poisoning of wells or water streams by the Angamis.

1.1.4.3. Disputes and Settlements

Disputes among the clans or in the same village over theft, rape, encroachment, homicide etc. are settled through different methods adopted by the two tribes. According to Ao customary law little boys till they enter 'morung' and little girls till they first tatoed are children and regarded as incapable of committing crimes, so no fine can be imposed upon the parents for anything they may do. In case

of homicide whether deliberate or accident, the relatives of the dead man are allowed (partly to content themselves) to wreck the murderer's house, loot all his property or even driving him out of the village but not permitted to kill the murderer. Settlement for theft usually done by restoring the property stolen to the victim and giving a pig to the elders by the thief. Taking oaths is also another form of settlement among the Aos. However, incendiaries are often hanged to dead.

Among the Angamis, theft case is always settled by exacting from the thief seven times the value of the property stolen, the fine being paid to the victim whose property is also returned to him if recovered. In case of homicide often the culprit is banished from the village for a period of seven years and confiscation of all his land as well. But, in certain serious cases of homicide the culprit is banished with his whole kindred not only for seven years but for the whole generation. However, serious type of disputes over anything of the sort between hostile villages often became the shortest step to definite war.

1.1.4.4. Marriage and Divorce

In old days' marriage system, an Ao groom had to serve in his would-be-bride's family for a period of six months or one year as formality. But among the Angamis,

after the two parties have agreed, omen watching from a strangled fowl and interpretation of dreams of the boy and girl of that particular night is done. Only when the interpretations come out in favour of their wish, then only marriage price is discussed and the day for the marriage is decided.

Divorce was rather a common phenomenon in Ao married life. It was exceptional to find a middle-aged Ao man or woman who has kept the same partner throughout. There is no ceremony connected with divorce. The couple simply separate. But the property had to be divided up. Usually the woman gets a tenth and the man the rest. Children (if they happen to have) often continue to live with the mother if she wishes so. However, for any kind of sickness with any of the children, expenses for treatments are shared equally by both the parents even though they are already divorced.

But among the Angamis, incompatibility is the chief reason for most of the divorce. When a man wishes to take a second wife without having divorced the first wife, he must first obtain the latter's permission. A widow can marry but she must obtain permission from her late husband's heirs before doing so, else she loses her property brought as dowry. Angami customary law permits a widow marrying her husband's younger brother if they wish, but not with the elder brother.

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1.1.4.5. Appearance and Nature

Sharp features, fair complexion, brown narrow eyes, airy hair, thin lips, Aryan type nose, clean face (mustache and beard seldom grow), often wearing a smile exacting to the purely of Mongolian type, is the appearance of Aos in general.

As far their nature goes, they are social, open-minded clever, sensitive, hospitable, adaptive and receptive. In fact, it is because of such qualities that the Aos could have taken up the sound decision of welcoming modern education in their land when the Christian Missionaries first came to the Naga Hills, while the rest are still reluctant to accept.

While the features of the Angamis are mobile, pleasant and often decidedly handsome while the voice is on the whole musical. Flattened nose and slightly oblique eyes of a decidedly Mongolian type may be seen side by side with straightness of eyes and nose that might be purely of Aryan. The colour of eyes is always brown and the hair black and wavy is rarely curled. The skin colour is from reddish to very fair. As regards their persons go, Angamis are neat and clean, washed frequently even in cold weather - a quality only too rare amongst hill folks.

By nature they are free and frank among themselves but not with others. Hutton (1991) describes, "Angamis as the proudest and most conservative of all the Naga tribes." Angamis are intelligent, honest, hospitable, humorous, independent, of course, often melancholic and reserved. It is said that when formal education was brought to Angami land by the Missionaries, Angamis were not very willing to receive it, and that may be one of the reasons why number of educated is less till today among the Angamis than the Aos. However, the least can be said about the Angamis is that they have mental outlooks and mental processes far more consonant with those of the average Europeans than it is with their Ao counterparts.

A special mention can be made here that education, embracement of a new faith (Christianity) and civilization have brought so much change in the life and behaviour of the modern Nagas and they hardly would like to remember tradition like head-hunting or they were once fully naked. Such things merely became a part of their history. Today, Nagas are like any other civilized group of people in the world in many respects like education, social, political, economic, moral, cultural etc. Their attitude has been changed from head-taking to soul-saving. Ambitious Naga youths often aspire for creative occupations where they cannot

only earn but also find the expression of their talents. Partly, in response to this, different types of vocations in government as well as private sectors have been introduced during the last few years. Now the government is also trying to introduce certain vocations including music in the colleges (P.U. level) under the guidelines of NEHU, along with academic subjects.

Most of the vocations included in the list of vocations supplied to the pupils (at the time of data collection) to indicate their vocational preferences are the vocations available in Nagaland. Besides, all the items and statements used for verbal and non-verbal test of creative thinking are derived from different cultural items and traditional ways of the Nagas of the Past and Present.

1.2.0. Creative Thinking

Man has been endowed with the unique and uncommon powers. Among all the powers that man possessed 'creative thinking' is the supreme and the most unique. Even the computer which can work with amazing feat cannot match, as it can only repeat the mechanical orientations, not the production of original ideas which the human mind only is capable of doing - the work of creation. In other words, the computer which the world marvells at is one of the products of human imagination.

The thinking mind is man's exclusive gift. Since time immemorial, thinking has been a weapon in man's armoury for defence and attack in the struggle for survival. Thinking has developed as an instrument for controlling and mastering a difficult environment. That is why, it is described as one of the most remarkable of human achievements.

Our thinking mind is of twofold: (i) a judicial mind which analyses, compares and chooses, and (ii) a creative mind which visualise, foresees and generates ideas. These two minds at best work together, judgement keeps imagination on the track. Imagination not only opens ways to action but also can enlighten judgement (Osborn, 1953).

1.2.1. Concept of Creative Thinking

Researches have shown that there were two distinct modes of thinking, one referred to as 'convergent thinking' (intelligence) and the other as 'divergent thinking' (creative thinking). Divergent thinking calls into play the abilities of 'fluency', the ability to think up as many solutions as possible, 'flexibility', the ability to think up different or categories of approaches or ideas, 'originality', the ability to think up unusual solutions, and 'elaboration', the ability to think up complete details of an item. This is the type of thinking which makes the strange familiar and the familiar strange (Gordon, 1961) or going beyond

the information given (Bruner, 1951). Guilford (1950) is of the view that creative thinking involves mainly the use of divergent production abilities which enable a person to think in different directions and find out new solutions to problems. According to Getzels and Jackson (1962), divergent thinking tends to be stimulus free whereas convergent thinking is stimulus bound.

Creativity as it is found in the Webster's Oxford Dictionary, has its 'root' in the Indo-European word base, 'Kere' which means 'to grow' or 'to cause to grow'. And in English verb - 'to create' or 'to cause to come into being' with the accompanied adjective, referring, meaning of creative, to 'ability' or 'power'. In fact, it is a word of power, prestige and prodigiousness that we all wish to appropriate. Creativeness confers power and distinction (Lytton, 1971). Thus, the term 'creativity' is more or less defined as the 'quality of being creative' or 'ability to create something entirely new'.

Flanagan and colleagues (1962), remind us that, to a great extent, the definitions of creative thinking are determined by the need of a culture. For instance, the definitions of talent in primitive tribes may be very simple: tribes whose survival depends on hunting wild game will define creativeness as the ability to 'hunt', while those

who are continually at war will value the ability to 'fight'. Further, even nations such as Greeks and Romans which produced brilliant men had a limited view of creativeness. The Greek valued the 'orator' and 'artist' but not the 'inventor', while the Romans prized the 'soldier' and 'administrator', but did not recognize many other talents. Thus, it seems to be very important to keep an eye on the cultural background of the society while defining creative thinking. However, creative thinking as some say, is a seed in man's life which germinates on fertile mind, waters in silence, blooms at midnight and fruition in public. It is a friend of loneliness and a foe of noisiness. Insanity, frustration, abnormality, neurosis, psychosis, all find their positive side in creativity. It grows from spark to flame and from flame to bone-fire in life.

Another view say, creative thinking comes within the range of our grasp only when we cease to strive for a time, when we let our desire cool, and retire the flesh. It is a sort of voice which though still and small in the rush of ordinary activity, grows more insistent in the silence.

A genuinely creative thinker is both critical of unsound views and yet adventurous in extending and developing new ideas. He is receptive towards what others have thought,

although unwilling to accept it as final. He shifts out the sound parts from the unsound and attempts to develop and experiment with what satisfies the critic in him as worthy of attention. Still it is further described as intuition, insight, imagination and the divine power in man (Thomson, 1959). It may be stated that in spite of the efforts made by scholars and even laymen to define creative thinking almost half a century ago (conscious effort), till today none of the definitions seem to be universally applicable. In other words, the definitions were, more or less confined to their own time, place and people.

However, defining creativity continues here, from its 'process aspect' as it is directly relevant to the study. Rhodes (1961), from a thorough analysis of fifty definitions of creativity has given us four strands (Ps) of creativity: Person, Process, Press and Product. Various theoreticians or systematic investigators in the field of creativity have used either one or a combination of these four strands of creativity, and the definition of creativity that one has given, hovers around that aspect.

It was Spearman (1930) who thought of creation as purely a process. For him, creative thinking is the process of seeing or creating relationships with both conscious or subconscious processes operating. Hebb (1949) expressed

creative thinking as a function of relative strength of conscious and unconscious processes, while Vinacke (1952) identified the same with an integrated harmony between external world of reality and individual's internalized needs. DeHaan and Havighurst (1961) reported the efforts of Wilson who tried to bring to focus the diversity in the meaning of creativity process as below:

- 1) The outflow of individual or group through which a product is structured.
- 2) An action of the mind that produces a new idea or insight.
- 3) The mental process of manipulating the environment which results in the production of new ideas, patterns or relationships.
- 4) The mental process that involves the rearrangement of past experience, with possibly some distortion, into new patterns to better satisfy some expressed or implied need.
- 5) The process which results in a novel work that is accepted as a tenable or useful or satisfying a group at some point in time.
- 6) The creative process is any process by which something new is produced - an idea or an object including a new form or arrangement of old elements.

The new creation must contribute to the solution of some problem.

Foshay (1962) considers the product as a part of the creative process. He postulates four major aspects of this process. Openness to one's own experiencing, focussing of one's experiencing, the discipline of one's actions to work out the focus and closure.

Lehois (1963) submitted, "Creativity may be viewed as a complex human attribute that is manifested as a cognitive empirical process from which an original product emerges (the process unfolds within all individuals but most intensively within those who possess a creative personality)."

The creativity exponents, like Guilford had also believed the 'process' when he defined divergent thinking as the process of hypothesis forming, testing and result communication. It is also clear from the definition of Torrance that he believed in the 'process'. Basing on Torrance definition, Yamamoto (1964) defined creativity as "the process of forming new ideas or hypotheses, testing these ideas or hypotheses, and communicating the results", Maslow (1967) believes that creative thinking and for that matter all learning and thinking involves pre-conscious rather than conscious processes.

Basic to these different descriptions of creative process are the classical steps suggested by Dewey (1910) and Wallas (1926). Wallas suggested the following four stages of creative thinking process:

1. **Preparation:** A good supply of information is necessary though it is not the sufficient thing for creative production. Therefore, collection of information i.e. preparation is suggested as the first stage of creative thinking process.

2. **Incubation:** When preparation is completed and conscious thinking is over without fruitful results, there is an interval between this point and the time of arrival of the creative idea, i.e. illumination. It is called 'incubation'. Incubation is a peculiar stage in creative thinking process in which apparently there is no activity on the part of the individual, but during which or at the end of which there often comes a flash of illumination, a solution to a problem or a strikingly new idea. But during this passivity, a persistent and strong urge to create is always there, consciously or unconsciously.

3. **Illumination:** Wallas stage of illumination in creative thinking is a much talked of event. Many creative thinkers believe it to be a source of their bright ideas. Illumination flashes suddenly and therefore it is also known as "the

period of luminous surprise", "intellectual rhythm" and "sub-conscious at work". Illumination coupled with luck is quite widely known as 'inspiration' which implies some supernatural influence. This notion has rendered a somewhat mystic touch to creativity. In fact, illumination is a state when an individual takes a sudden large leap in his thinking. Westcott (1961) calls it the 'intuitive leap'. This memory of inspiration is often associated with 'Eureka Feeling' (Rogers, 1959). There is unanimous agreement that during intuition, there is an abundance of controlled thinking, a resort to free association in a kind of day-dreaming state, and at the end, comes a flash of genius (Beveridge, 1950).

4. **Verification:** Wallas last stage of verification involves both elaboration and evaluation. Evaluation in creative thinking is an unavoidable step if any of the creative product ultimately is to be of any use to a community. It is a part of the creative process. As Guilford (1950) asserts that evaluation is always there right from the beginning throughout the creative thinking process.

When one thinks of creativity from 'process aspect' one can avoid to a great extent the problems associated with cultural differences inherent in the use of the term. It also helps to think in terms of the abilities involved in the successful operation of the process or for the production

of creative products. Qualities of the product will result from the process itself. Personality variables or environmental conditions that facilitate or hinder the creative functioning can also be described by the process definition. This is why Torrance prefers the process oriented definition of creativity. This is also why the present investigator selected his definition as operational definition of creativity, which he (Torrance) defines as "a Process of being sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies and so on; identifying the difficulties, searching for solutions, making guesses or formulating hypotheses about the deficiencies; testing and retesting them and finally communicating the results."

This definition includes all the steps of the creative thinking process suggested by Dewey (1910), Wallas (1926) and Rossman (1931), and characterises creativity as a natural human process motivated by strong human needs (Deshmukh, 1984).

1.2.2. Components of Creative Thinking

In fact, creativity is a complex blend of a number of abilities or components. Some of the basic components of creativity are as follows:

(a) Sensitivity to Problems: Many a time we are surrounded by problems though we are not quite aware of them. But a

creative person senses the presence of a problem instantaneously and girds up his loins to find a satisfactory and acceptable solution to the problem. This component indicates the receptivity for problems when the creator sees defects, needs, deficiencies, oddities, unusualities and sees what must be done. Whether the problem is simple or complex, he attacks it from various angles.

(b) **Fluency:** It refers to a rapid flow of ideas and tendencies to change direction and modify information. On a particular topic or a problem, a creative person can express his ideas very fluently. The relevant ideas given by him are counted to ascertain the level of his creative thinking ability. This component is the quantitative representation of the units of products.

(b) **Flexibility:** A creative person's thinking is characterized by flexibility rather than rigidity. It is the readiness to change the behaviour to meet the changing circumstances. The ideas expressed by a creative person on a particular topic are not of the same type, that is, they do not belong to one and the same category. Therefore, flexibility represents number of classes of objects or trains of ideas produced. It indicates, in how many different ways the individual can respond to a stimulus. To evaluate this ability, the ideas expressed by an individual may be categorised and the number of the categories may be counted.

(d) **Originality:** It refers to the unusual ideas and suggestions or unusual appreciation of particular objects. This is the most important component of creativity. While expressing his ideas on a certain topic or devising solution for everyday problems, a creative person will put forward such ideas as are original or they are indirectly based on ideas previously read or heard. To determine this ability, original ideas out of total ideas expressed by an individual should be counted. Statistical in frequency is the criterion to determine originality of a response as it represents the newness or uncommonness in the product.

(e) **Elaboration:** It refers to the expanding and combining of activities of higher thought. It shows production of detailed steps, variety of implications and consequences which can be qualitatively measured.

(f) **Curiosity:** Curiosity is another important component of creativity. The creative person is always anxious to understand each and everything of his universe. He remains restless until he is able to understand what he has heard or read. Such individual with limitless curiosity succeed in making discoveries and creating new things.

(g) **Imagination:** Imagination occupies a very important place in the creativity component. A number of abilities

included in creativity are based on imagination. Only a person with good imaginative mind can express a greater number of ideas fluently, flexibly and originally.

(h) **Redefinition:** Redefinition is closely related to flexibility that arise from transformation, specially of convergent productions. It is the ability to rearrange ideas, concepts, people and things to shift the function of objects and use them in new ways.

However, it should be noted that an appropriate sphere is an essential requirement for creative functioning of any of these components. It is true that we cannot expect good crop from a good seed unless suitable soil and proper care is given. Likewise, creative thinking of a person cannot flourish in the absence of an appropriate sphere either in the society or school or at home.

1.2.3. Structure of Intellect Model

The single most important influence on definition of creativity was the research of Guilford (1959, 1967). Thus, the end of 1950s had brought a new era of research in the area of human ability by the appearance of Guilford's 'Structure of Intellect Model'. Guilford has identified as many as 150 separate abilities. Through this research Guilford called attention to the fact that most of the widely

accepted measures of intelligence assessed not more than half of these abilities. His research has emphasized the fact that there was no way that a single IQ score could be an accurate index of an individual's intelligence because there were in fact, a number of 'Intelligences'. He defined intellect as a "System of thinking and memory factors, functions and processes" (Guilford, 1959).

Guilford, thus, not only able to separate creativity from intelligence, but also discovers two types of thinking which he calls, convergent thinking - which is of intelligence and, divergent thinking - which is of creativity. This new discovery forms a stepping stone to the subsequent researches in the area of creativity by changing the emphasis from intelligence to creativity.

In Guilford's model, intelligence is perceived as having three dimensions, contents, processes and products. He said that every human ability has these three dimensions, and every ability is related but distinct. According to him, the best model that can be constructed to explain the structure (model) and relationships among these abilities is a 'morphological one', a three dimensional cube. Within the content dimension - there are four types: figural; symbolic, semantic and behavioural. Operations (processes) include: cognition, memory, divergent thinking, convergent thinking

and evaluation. products can be of six types: units, classes, relations, systems, transformations and implications.

Each human ability is an intersection of these three dimensions, and can be identified by tests chosen or constructed by Guilford and his associates. For example, an item included in some intelligence tests requires an individual to put a series of pictures into correct order. This item tests convergent product (an operation of semantic (a content) system (a product)). Thus, Guilford's theory of structure of intellect has great educational implications for relating content, process and product into a unified problem solving approach to teaching learning process. A diagram of the model is given in Fig. 1.2.

A brief description of the three dimensions along with their sub-types, is given here.

1. Contents: The Kind of Information Received

- i) Figural - Refers to to concrete in form, often involving visual and facial objects.
- ii) Symbolic - Denotes signs - such as letters, code numbers, when meaning and forms are considered important.
- iii) Semantic - The meaning to which words, pictures or notations have become attached.

Guilford's model of the structure of the intellect

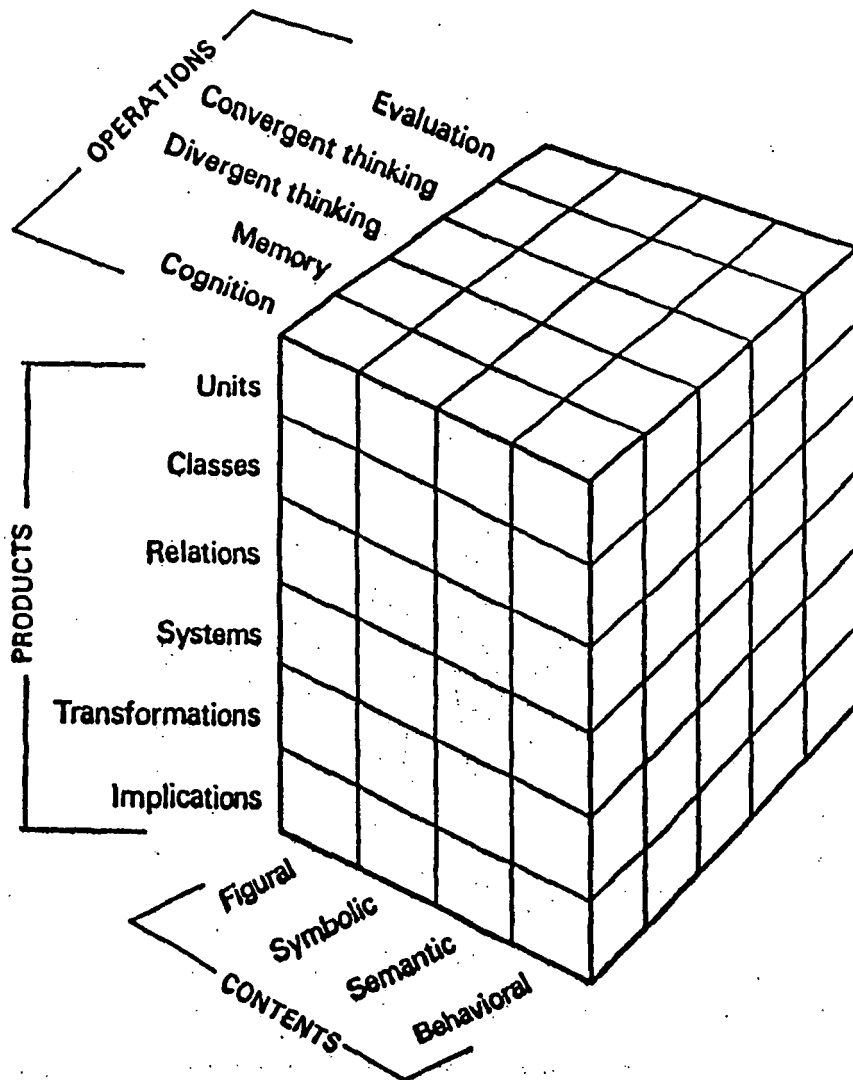


Fig. 1.2

- iv) Behavioural - The social aspects of intelligence, information essentially non-verbal regarding behaviour of ourselves and others.

2. Operation: How the Information is Processed (Process)

- i) Cognition - Simple recognition, comprehension or understanding.
- ii) Memory - Retention or storage of information in some form.
- iii) Convergent thinking - Output of a single answer in terms of conventionally accepted expectations.
- iv) Divergent thinking - Output of many and qualitatively different answers from some source of information.
- v) Evaluation - Making judgements or decisions in terms of criteria considered correct, suitable, desirable or adequate.

3. Products: The Outcomes or Results

- i) Units - Segregated items of information having such unique characteristics as digits, letters, dots or words.
- ii) Classes - A set of units involving a conception associated with the common elements such as words with similar meaning or with plural endings.
- iii) Relations - An association between units or classes as in words or figures analogies.

- iv) Systems - An organisation or structuring of items, classes or relationships often involving discovery of rule required as in a letter or number series.
- v) Transformations - Change, permutation or redefinition of existing information or its use in the case of new interpretation of stories or poems.
- vi) Implications- Formation of extrapolation as in making inferences or predictions or in suggesting antecedents of observed events or in anticipating consequences.

Thus, each process in the model (e.g. cognition) will act upon each content (e.g. semantic) to produce each type of product (e.g. units). Each quality drawn through the model will represent the three characteristics of these facts.

It may be concluded that Guilford's Theory and research have provided the stimulus for landmark studies on creativity by Getzels and Jackson (1962), Wallach and Kogan (1965) and decades of research by Torrance (1966, 1974, 1981). Because of the work of these individuals and the social climate of the time, creativity began to be included as one of the most recognised talents for research, assuming almost equal importance with traditional conception of 'giftedness'. The researches of these individuals have pre-

sented convincing evidence that the abilities included under the domain of creativity were just as important or perhaps more important to academic or career success than those abilities classified under the label of intelligence.

1.2.4. Creative Thinking and Intelligence

Most of the early psychologists considered creativity either akin to intelligence or included it in the domain of intelligence though it, actually is very different from intelligence. Thurstone (1938) clearly pointed out the drawback of intelligence tests and tried to give measures for creativity, but it was till Guilford's protest at the Conference of American Psychological Association in 1950, not to equate creativity with intelligence, and since then, the issue got an impetus. As a consequence, Thurstone (1951), emphasised the distinction between the two and provided a provocative analysis of the possible role of ideational fluency, inductive reasoning and certain other tendencies in creative behaviour.

But it was from the pioneering work of Guilford and his associates (1956, 1957) that has brought to the fore the existence of two distinct types of thinking abilities of the intellectual domain which they called as convergent production and divergent production. The former involves the production of facts from the already known information,

ficant way from those who could be designated as highly intelligent.

Hudson (1966, 1968) has pointed out that divergent thinkers tend to be interested in literature and arts and specialize in them, while convergent thinker turn to science.

Again, Getzels and Jackson (1962) in their landmark study on top 20 per cent high creative and top 20 per cent high IQ students in relation to their personality traits and achievement have found significant difference in personality characteristics of the two groups. But, difference in the achievement was not significant.

However, in the end, it is still apt to think of these two abilities as two different styles of thought (Guildford, 1950), as two complementary aspects of human intellectual ability broadly conceived (Wallach and Wing, 1968).

1.2.5. Development of Creative Thinking in Pupils

In any system of education, what is necessary today, is to bring about the optimum development of the whole individual. To realise this end, the teaching which encourages children to acquire generalised learning strategies will be a prerequisite. It is obligatory on the part of the school to equip the child with generalised intellectual and other skills which will enable him to cope effectively with what-

ever state of the world he will encounter later in life. The major of these generalised skills or strategies is the creative thinking or creative learning.

The greatest joy of the teacher and the greatest hope for better world lies in the cultivation of creative power in children. Lowenfield and Brittain (1966) rightly remarked: "To teach toward creativity is to teach toward the future of the society". But the scene of the battle essentially is the classroom. It is a critical locus for a student's interpersonal and educational development while staying in school. Each classroom has its own distinct atmosphere and climate which may help or mitigate classroom interaction which in turn may impede the development of creative thinking in children.

Besides, creative thinking does not bloom in vacuum. It is just like a tender bud that resides in some measures within every child requiring only the gentle catalytic influence sensitive, imaginative teaching to coax into a glorious bloom. The creative mind interacts vigorously with a series of supporting and non-supporting factors whether at home or in the school. However, if we want to increase our creative manpower potential curiosity has to be fostered in children. Therefore, the crying need for every classroom today is the creation of suitable classroom climate and nourish the creative thinking of children.

Considerable attention has been given to description and measurement of creative ability during the last few decades, but little has been done regarding how school personnel can bring about expression and manifestation of creative endeavour on the part of the learner. One of the main reasons for the need of creating creative classroom climate and employing creative teaching in the classroom, is the fact that the genuinely creative pupils fail in life unless their talents are adequately tapped in schools.

Besides, a developing country like India needs men and women of high creative who can think up solutions to the varied problems baffling the country. The progress of any country in different areas of life such as, economic, political, social, cultural and even moral and spiritual, is mainly due to the efforts of a handful of its creative individuals. Toynbee (1964) has rightly said that "a few creative minds can make an enormous difference to civilization." He further said that "to give a fair chance to creativity is a matter of life and death of any society."

For proper cultivation of creative thinking in the classroom, the most crucial thing lies with the role of the teacher. The teacher is one of the most essential factors in the total educational system. In any way, he influences the personality of the students. In other words, students

copy his behaviour in the classroom and, they are satisfied only when his teaching can quench their thirst for knowledge and expression. Therefore, a teacher, in today's classroom, should be able to create conditions which enhance the creative thinking of his students, lest many of the students problems may stem out of the kind of negative attitudes he has in the classroom which in turn may trouble the development of creative thinking in students.

In general, most of the school teachers prefer high I.Q. pupil to high creative one, as high creative pupil causes classroom problems to the teacher and school administration, as he is unpredictable. Hence, school teachers and administrators resent the creative, the bold and the unusual individual, because they prefer conformity to non-conformity. But what is expected from teachers is to stimulate creative thinking instead of stifling it, specially in this age where creative men and women are the called-upon people. Unfortunately, under the present set up of our education system neither the teachers want creative students in their classrooms nor the administrators want creative teachers in their institutions.

Like teachers, parents should also play, a vital part in moulding and correcting imbalances in the personality of the child and also in promoting creative thinking

in him. Perception of parents' attitudes and values by children makes a difference in the development and expression of their creative thinking. Torrance (1962) asked parents to help the child to understand his divergence, allowing him to communicate his ideas freely, enabling him to recognize and esteem his own creative talent. In the same way, society or authority in the institutions has also significant role to play in developing creative thinking in children.

A teaching is helpful in developing creative thinking when the teacher teaches in the ways that are favourable to the development of basic skills, understanding, work habits, desirable attitudes, valued judgement, adequate personal judgement etc, of pupils. In this kind of teaching special emphasis is laid on pupil's freedom of thinking in solving the problems in his own ways and the teacher acts as initiator, facilitator and helper whenever a pupil solves or fails to solve a problem. In such teaching, rote learning and blind imitation are not encouraged as such tendency can make pupils become slaves to traditional techniques and practices of learning which are foreign to developing creative thinking.

Another important thing in creative teaching is, the teacher must emphasize 'openness' in all his teachings as openness may lead to divergent thinking of pupils. Such

teaching leads to generation of a number of new ideas, words, phrases, flexibility of thoughts and different directions of thinking in the pupils. Besides, the teacher must be acquainted with the technique of questioning and take full advantage of it. Questioning can be done about known subject matter and also about the unknown. This will afford stimulating environment to students to develop their questioning ability which is one of the forms of curiosity in action — the backbone of creative performance. For example, if a teacher perceives some novelty in students in classroom, instead of checking he should appreciate it.

Some important models or strategies of developing creative thinking have been developed by some of those who are tirelessly working in this field during the past few decades.

Torrance (1978) has identified five of the most useful of the available models that have been developed. They can be adapted to almost every subject matter content at any educational level to increase the chances of developing creative thinking in students. They are: (1) Creative problem solving model conceptualised by Osborn (1953) and refined by Parnes and his associates (1976, 1977); (2) A lateral Thinking Model of Debono (1970); (3) Psycho-dramatic Model (Moreno, 1946, Torrance 1976); (4) Before, During and After

Model of Torrance (Torrance 1970, Torrance and Myers, 1976); and (5) Cognitive-Affective Model of Frank Williams (1972).

Gary Davis (1969) has summarised seven general approaches to teaching creative thinking in the classroom as follows: (1) Providing creative atmosphere; (2) Stimulating Thinking; (3) Encouraging Original Thinking; (4) Using discovery method of teaching and learning; (5) Changing curricula in the direction of more creative course work; (6) Teaching problem solving methods; and (7) Teaching systematic methods for generating new and combination of ideas.

These seven approaches are considered increasingly direct and helpful to the teacher to teach creative thinking and problem solving skills in pupils.

Other than these seven there are also some techniques which are often used in most of the attempts to teach creative thinking. They are morphological analysis, synectics, check-list, role playing, programmed instruction, attributes listing etc.

It has also been through different researches that non-threatening and psychologically safe conditions in the classrooms are a prerequisite for developing creative thinking. Researches have also indicated that an individual will feel threatened if his self-image is questioned by others

(Hyman and Sheatsley, 1947); if a new behaviour represents unfair elements (Mitchel & Mudd, 1957); if the desired change threatens the individual's status (Willover, 1963); or if the individual feels insecure about prospect of change (Gallagher, 1964). All these feelings of threat are rooted in the ambiguity and uncertainty in external sources which tend to increase the damaging anxiety which deflects an individual from constructive use of his talents.

In her exploratory study, Dye (1964) concluded that the history of civilization suggests the interdependence between creative thinking and democratic climate. A number of studies also seem to support this view and indicate that freedom and order properly proportioned, are necessary for emergence of creative thinking. A democratic climate in the classroom provides highly balanced combination of the two. It provides enough freedom to challenge the creative potential of a pupil and enough order to provide the means to actualise it.

Thus, the first main task of school (education) is to identify the creative talent of pupils from the early stage. The second important task is to nourish it by providing the right kind of needs through right approaches. The third or the last duty of school is to let the talent bloom to its perfection by creating a conducive climate in and

outside the classrooms. it is a universally accepted fact that creative thinking flourishes in the classroom.

1.2.6. Measurement of Creative Thinking

Even though the measurement of creativity is still a challenging task to the researchers, quite a good number of creativity tests have been developed during the last few decades. This has been developed during the last few decades. This has been done with the assumption that creativity and intelligence are two independent abilities and that the traditional intelligence tests are inadequate to measure the mental abilities in their totality. In spite of the complication involved in the measurement of creativity, efforts have been made to measure it by employing different types of media and methods of investigation depending upon specific situations.

McCarthy (1924) used 'Graphic Procedure' to measure creativity in children. Abramson (1927) measured creativity through Inkblot responses and observations. Gripper (1933) measured creativity with the help of 'continuous contact method'. Stephenson (1949) measured creativity through 'Poetry Writing and Drawing tests'. These are some forms or methods of measuring creativity of children in the early days.

The systematic measurement of creativity started more or less from Guilford (1951) when he developed planned tests and used them for the purpose. Flanagan (1958) measured creativity through 'Problem-Solving Tests', Wallach and Kogan (1964), Getzels and Jackson (1959) and Torrance (1963) developed batteries of creative thinking tests of their own, are some of the most prominent and widely used tests of creativity upto date in the West, while, creativity tests developed by Parsi (1972), Kaul (1973), Majumdar (1973), Mehdi (1973), Chauhan and Tiwari (1974), Ramchandrachar (1975) and Kundley (1977) are some of the prominent ones in the country. However, most of these Indian tests of creativity are based on Guilford's as well as Torrance's creativity tests. Some of the tests are described here briefly.

1. Torrance Test of Creative Thinking (TTCT, 1966)

This test is one of the most prominent and widely used tests of measuring creativity. This is rather the only specially designed test through which creative thinking of children can be measured specifically. TTCT is available in parallel forms to test both verbal and non-verbal creative abilities. The thinking abilities that are sought to measure in both the verbal and figural tests in this test battery are:

- 1) Fluency - The number of ideas produced.

- 2) Flexibility - The number of shifts from one type of ideas to another.
- 3) Originality - Production of statistically infrequent or uncommon ideas.
- 4) Elaboration - Expansion of single ideas into details.

The pre- and post-test scripts were scored for all these abilities. The verbal tests were scored for fluency, flexibility and originality and non-verbal (figural) tests were scored for fluency, flexibility, originality and elaboration. All the seven sets of sub-scores were standardized and added together to derive total figural, total verbal and composite creativity scores. The composite creativity score is related to number, novelty and variety of responses of the students. The reliability and validity studies reported by the test constructor in the test manual indicate that the test battery is highly reliable and valid to measure the creative potential of individuals (Torrance, 1974). (for Guilford's test see S I Model, vide Caption 1.2.3.).

2. Passi's Tests of Creativity (1979)

This is verbal, non-verbal, individual and group test of creativity. This test is published in both Hindi and English and mainly developed for the purpose of measuring creativity in school children. There are six tests altogether in this test battery. They are given in this section.

1) **The Seeing Problems Test:** This is a verbal individual-group administered test. It is designed to measure a factor of sensibility to problems, the ability to comprehend problems concerning the working of simple and handy articles of common use.

2) **The Unusual Uses Test:** This test includes the objects which could be used for numerous purposes but only those items which have proximity with the psychological and physical environment of the subjects.

3) **The Consequences Test:** This test measures the dimensions of fluency, flexibility and originality.

4) **The Test of Inquisitiveness:** This test expects from the subject to imagine and write as many questions as possible within six minutes. The questions should be mutually exclusive to one another in contents and meaning. The test provides non-verbal stimuli but the responses are to be accepted in writing in any of the language - Hindi, English or mother tongue.

5) **The Square Puzzle Test:** This test aims at measuring persistences with the help of a performance test in which a difficult situation is set up for the subject with the help of a puzzle. The square puzzle which consists of five identical right-angled triangles and five identical quadrilaterals made up of plastics.

6) **The Block Test:** The block test of creativity is a performance test which chiefly follows the pattern of Lownfield Mosaic Test (1952) which was described by Ames and Frances (1962) as useful tool for providing greater opportunity to observe individual engaged in performing dynamic designs.

3. Baqer Mehdi's Tests of Creative Thinking

The battery consists of both verbal and non-verbal tests. The verbal test of creative thinking includes four sub-tests, namely, consequences test, unusual uses test, similarity test and product improvement test. Their brief description is given below:

1) **Consequences Test:** This test consists of three hypothetical situations for which the subject is required to think as many consequences of these situations as he can, and write them under each situation in the space provided for.

2) **Unusual Uses Test:** This test presents the subject with the names of three common objects and requires him to write as many novel, interesting and unusual uses of the objects as he may think of.

3) **Similarities Test:** This test presents the subject with three pairs of words apparently different and requires

him to think and write as many novel relationships as possible between the two objects of each pairs in the space provided.

4) Product Improvement Test: In this test the subject is asked to think of a simple toy of a horse and suggest additions of new things to it to make it more interesting for the children to plan.

The total time required for administering the test (verbal) is 48 minutes in additions to the time necessary for giving instruction passing out test booklets to children and collecting them back.

The non-verbal test of creative thinking is intended to measure the individual's ability to deal with figural content in a creative manner. Three types of activities are used for this purpose, viz., picture construction, picture completion and triangles and ellipses. The total time required for administering the test is 35 minutes, in addition to the time necessary for giving instructions, passing out booklets and collecting them back. A brief description of these activities is given below:

1. Picture Construction

This activity presents the subject with two simple geometrical figures and requires him to construct an elabo-

rate picture using each figure as an integral part. The subject is allowed to turn the page to use the figure in any way he likes for making the picture. Emphasis is put on originality and elaboration by requiring the subject to construct a novel and most elaborate picture.

2. Incomplete Figures

This activity consists of 10 line drawings which could be made into meaningful pictures of different objects. The subject is asked to make a picture which no one else in the group will be able to think of. He is also asked to give an interesting and suitable title to each picture he makes.

3. Triangles and Ellipses

In this activity the subject is provided with 7 triangles and 7 ellipses and he is required to construct different meaningful pictures based on the two given stimuli. He is also required to give a suitable title to each of the picture he makes.

In spite of the various tests of creative thinking so far developed by different researchers in both East and West, the present investigator felt the need of developing a creative thinking test battery of his own (by adopting Mehdi's) in view of the different cultural setting, local

suitability and understanding level of high school tribal pupils in Nagaland. It is also a well known fact that the culture concerned plays a significant part in the development of creative thinking of children. Hence, the battery of 'Nagaland Tests of Creative Thinking' (NTCT) used in the present study has been developed.

1.2.7. Need and Importance of Creative Thinking in Education

Just as the potentiality of a seed brings forth a tree, similarly creative potentiality of a man brings forth his universe. Just as an effect does not exist apart its cause or a pot does not exist apart from the clay, similarly the age of science and technology does not exist apart from the creative potential.

The importance of creative thinking in education and the significance of creative talent in the well being of the whole mankind, has been rightly described by A.W. Griswold (Singh, 1981) in the following lines:

"The spark from the heaven falls,
Who picks it up? The crowd?
Never, the individual? Always.
It is he and he alone as artist,
scholar, scientist, inventor, explorer,
spiritual leader, a statesman -
Who stands nearest to the source of
life and transmits its essence to his
fellow men."

Perhaps, keeping in view the importance of creative thinking

in education, the report of Kothari Commission 1964-66 opens with the following lines:

"The destiny of India is now being shaped in her classrooms."

Truely, creative thinking is the unique gift of nature which is exceptional endowment to man alone. It is creative thinking which enables man to wear the crown of creation. Before him the biggest animal kneels down, the fierce animal runs for life. Come back to his own world there are Newtons, Einsteins who have changed the history of mankind, landed on the moon, flown triumphantly touching stars. Creative thinking at its highest, has been as important as any other human quality in changing and reshaping the world.

The scientific and technological advancement of today or what they call it 'Space Age', is a long journey from stone-age to nuclear-age. Today, there is tremendous expansion in social, economic, political and religious fields all over the world. The development of industries, discovery of atomic energy and excellency in artistic works had opened up many possibilities for further advancement in the field of space researches. There are computers, calculating machines, fastest jetliner in the sky and trains on the surface, accelerating the pace of research for the welfare and betterment of mankind. A question which is hardly asked by many is,

"Who's responsible for this tremendous progress that mankind has attained." The answer is, "a relatively small proportions of world's population - high creative individuals."

Indeed, behind every achievement of human race is a germ of creation growing in the mind of some lone individual whose dream waken him in the dead of night while others lie contentedly asleep. We need such dreams because today's dream represents tomorrow's reality. The progress and survival of mankind will eventually depend upon how effectively the most precious human resources of creative children are conserved and utilized.

It is also true without proof, that for a developing country like India where problem like mass illiteracy, communalism, poverty, wastage and stagnation, religious bygotry etc. often shakened the unity of the nation, the only hope of solutions for these, lies with a few creative people. Because, they are those who can see through the problems for the right solutions. They will give education to the illiterates, harmony to the disharmony, peace to the peaceless, negotiation to the disputes. They are those who are going to re-boundarise the world for one humanity, one nation, one language and one understanding.

A while look back to the scientific and technological and cultural fields will also help us to prove the point

true. Centuries ago, man dreamt of flying like birds, but today his dream is realised that he could fly even better than the birds. Modern facilities like radio, television, wireless, cinema, aeroplane, telephone, vehicles, steamers, rockets, medicines, refrigerators, nuclear energy, satellites etc. which were not existed in their present forms, are just the creation of man. In the field of art too, you only find solace and could avoid worries when the genius Leonardo's creation 'Monalisa' smiles from your walls. Such is the power creative thinking has, and such is the power a creative person possesses.

Thus, we need today, so deliberately outstanding men and women with real originality, flexibility and imagination even to solve problems concerning national integration, communal harmony, caste stratification, religious rivalry, narrow tribalistic outlook, corruption, illiteracy, famine, draught etc. in the country and even the world. Hence, without any hesitation it may be stated that almost every phase of life activity today is in dire need of creative people — people with vision, originality and initiative and ingenuity. The world is paying large premiums to those who can invent a new idea, a new device, a new way to make something novel. Indeed the present age is taking man to places where old and comfortable ideas do not apply.

Threat to man's survival challenges to consider what man may become at his best and to reach new ways to helping his young generation realise their creative potential. Our hope for future health, prosperity, peace, pleasure and even survival of this planet depends upon the kind of knowledge and understanding that are yet to be released from these budding creative thinkers.

1.3.0. Vocational Preferences

Preference for a vocation which is suitable to one's interest, ability and need, is one of the most important requirements in the life of every modern citizen. It is true that in spite of the agony of unemployment, there are still many who are suffering even after they are well placed in certain vocations of high prestige or earnings. The reason being the fact that every occupation is not everybody's interest or capability. Wrong choice of an occupation can make a person turn against his own occupation and lead a displeased professional life jrefuting to everything around him. Hence, it is essential for a person specially - a youth who is just at the threshold of taking up an occupation to give ample scope to expose himself to differential occupational situations and let him find out or develop his interest for the vocation he has natural inclinations, at the right time or age.

1.3.1. World of Work

Before proceeding further, it may not be out of place to have a peep into the world of work and try to familiar with some of the terms like 'world of work', work, position, employment, vocation, profession, career, job, vocational choice, and vocational preference, which are going to be used more often than once in the later part of the thesis.

Feingold and Swerdloff (1969), in their book entitled, 'Occupations and Careers', have described the terms world of work, work, position and employment, as given below:

World of Work: The sum total of all the kinds of work - from very simple to highly complex - in which men and women of today engage in order to earn a living.

Work: Any kind of planned and responsible activity in which an individual engages with an expectation of getting a gainful return for his efforts.

Position: A position is a group of tasks performed by one person. There are always as many positions as there are workers in a plant or office.

Employment: It is any kind of work for pay or profit.

Webster Merriam (1971) has described the terms vocation, profession, occupation, job and career in the following manner.

Vocation: It is defined as a strong inclination to a particular state or course of action. It is the special function of an individual or group.

Occupation: Occupation is an activity in which one engages or the principal business of one's life.

Profession: A special calling requiring specified knowledge and often long and intensive academic preparation. It is also defined as a principal calling, vocation or enjoyment.

Job: It refers to the specific duty, role or function, a regular remunerative position; a process of doing a piece of work.

Career: It is a profession for which one trains and which is undertaken as a permanent calling.

Again, 'career' is defined as a course of an individual taken in his progress through life. It may include a variety of jobs and a number of different occupations (Feingold and Swerdloff, 1969).

'The 6th International Conference of Labour Statistics' also adopted the following as the definition of an occupation: "An occupation is a trade, profession or type of work performed by an individual irrespective of the branch

of economic activity to which he is attached" (Kochhar, 1984, p. 95).

Super and associates (1957) defined vocation as the person-centred aspect of work. It is also defined in the Random House Dictionary (1967) "as a particular occupation business or profession; calling ... strong impulse or inclination to follow a particular activity or career." Thus, in the light of the definitions given by different individuals, it may be stated that a "vocation is a kind of engagement or course of action or activity which a person inclines to be in, for which he requires a specialised knowledge and from which he requires a specialised knowledge and from which he gains some benefit - in terms of money, respect and satisfaction for the fact that he has done something good for himself as well as for others or society."

It may be useful to distinguish between the terms vocational choice and vocational preference. In vocational choice, the individual predicts what he probably will do among two or more vocations. For instance, "What kind of work do you feel you are best prepared to do at present?" (Gilger, 1942).

And, in vocational preference the individual indicates, what vocation he would like to do most from among some

vocations. He gives his preference to the most desired or liked vocation according to his preference. For example, "What vocation or life work do you want most of all to undertake?" (Gilger, 1942).

It may also be viewed that the two variables are distinct to the extent that they differ in representing the reality-oriented selection of occupations. Vocational choice, for that matter, is considered to be more realistic than vocational preference. However, they are of the same nature as they all involve the selection of an occupation regardless of the basis for the selection. But the term vocational preference is preferably used for the purpose of the present study.

1.3.2. Vocational Development

Another important issue which need equally serious attention is - Vocational development in the life of a person. It goes, "how does the vocational development take place? Since when, and how long, in the life of a young adolescent, and how to detect that, and guide him for the right preference of vocation in consonance with his talent, for a happy and contented life in future?"

Similar to any other aspects of development, vocational development may be conceived of as beginning early in life and as proceeding along a curve late in life. For

instance, a four-year old child who plays the role of a policeman or soldier while playing, is a very early stage of vocational development and, an old-man of sixty who does not work for money but still keeps himself busy with writing books in the field of his specialisation, is going through the late stage of vocational development.

Buehler (Kochhar, 1984) has classified vocational development into five (5) stages in the life of an individual. They are -

1. Growth (0 - 14 years) - more or less fantasy choice or not very realistic choice, frequent change in attitude;
2. Exploratory (15 - 24 years) - with the sub-stage of fantasy which may be tentative or realistic with appropriate attitudes towards work and occupation;
3. Establishment (25 - 44 years) - beginning with trial and progressing into a stable position as the individual begins to make his place in the world of work;
4. Maintenance stage (45 - 65 years) - characterised by stability in the field in which establishment has taken place earlier in life; and
5. The decline state (65 onwards) - characterised by declination during the early part and progressing into one of retirement.

Buehler's classification seems to be supported by the findings of a study conducted by Ginzberg and others (1963). The study concluded that an individual never reaches the ultimate decision of his vocational preference (choice) at a single moment in time, but through a series of decisions over a period of years. They have also divided the process of occupational decision making into three distinct periods, (i) 'the period during which the adolescent makes what can be described as a fantasy choice'; (ii) 'the period during which he is making a tentative choice'; and (iii) 'the period when he makes a realistic choice'. They pointed out that the second period coincides, by and large, with early and late adolescence, of course, with a few exception of realistic choice during childhood.

Thus, the process of vocational development is a continuous and on going one. It is essentially that of developing and implementing a self concept, a product of the interaction of inherited aptitude, neural and endocrinal make-up, opportunity to play various roles and evaluation of the extent to which the results of role played meet with the approval of supervisors and fellows.

1.3.3. Vocational Preferences and Creative Thinking of Teenagers

Unemployment, underemployment and unsuitable employment are some of the major problems that the country is

facing at present. Educational institutions are charged with the responsibility of developing vocational behaviour which may be helpful in solving some of these problems. In other words, education must meet the requirements of the individual as well as the society.

Right type of curricular choice and vocational preference has a close relation (Singh and Singh, 1967). Today, this consciousness has come to occupy a central place in the life of our blooming talents who are aspiring for higher achievements with satisfactory vocations. Therefore, the 'reality principles' followed at the initial stage can ensure maximum utilization of one's talents, aptitudes, interests, motivations and aspirations. Thus, there is to be a meaningful and realistic relationship between one's educational pursuits, talents and vocational preferences.

Frank parson (1909) was the first to give his ideas on the importance of vocational preference in life and the possible close relationship between our desires (environment) and internal endowments (heredity). He makes his concept clear through the sentences given below:

"No step in life, unless it may be of the choice of a husband or wife, is more important than the choice of a vocation.... These vital problems should be solved in a careful, scientific way, with due regard to each person's aptitudes, abilities, resources and limitations, and the relations of these elements to the conditions of success in different industries."

He further throws light on the importance and suitability of a vocation which ultimately brings success and happiness in life in the following lines:

"An occupation out of harmony with the worker's aptitudes and capacities means inefficiency, unenthusiastic and perhaps distasteful labour, and low pay; while an occupation in harmony with the nature of the man means enthusiasm, love of work, and high economic values - superior product, efficient service, and good pay. If a young man chooses his vocation so that his best abilities and enthusiasms will be united with the daily work, he has laid the foundation of success and happiness."

Again, Holland (1966), has given a new turn to the meaning of vocational preference that preference of an occupation is an expression of personality. He said that,

"What we have called vocational interests are simply another aspect of personality.... The choice of an occupation is an expressive act which reflects the person's motivation, knowledge, ability and personality. Occupations represent a way of life, an environment rather than a set of isolated work functions or skills."

In the light of the importance of choosing a suitable vocation by a young adolescent, William Gillman observed that,

"Each individual has a characteristic vocational pattern which reflects his personality structure and influences all aspects of his vocational life from choice through occupational planning to job judgement. The meaning

of work to the individual, ability to desire, satisfaction from work, motivation, mobilisation of energy in a work situation, capacity to adjust to interpersonal relations in the jobs, positive and negative work identification and ability to adjust work pressures are the main aspects of vocational pattern."

He further says that, "the most important of these, is the meaning of work to the (young) individual." In so far as the work expresses the goals and aspirations of a given individual, the meaning of work determines the characteristics nature of his vocational pattern, its rigidity and flexibility and the extent to which it meets his creative needs.

These days many young men and women go through life without making much a success of it because they do not take up the vocation they are best suited to follow and, hence, they do not find their true place in life. As a result, they struggle in life without achieving much or leading a half-defeated life. It is for this reason that the primary concern of a young man or woman is to find out the right occupation for himself or herself at the right time, the occupation for which he/she is best fitted by nature, inclination and accomplishments, and then adopt that as his/her occupations in life.

Whatever an individual is going to prefer or desire always have a close connection with his natural endowments -

whether it be intelligence, creativity or any other. Psychologically also it is very true that, every physical movement (speaking or behaving) has its corresponding movement in our mind). Our mind, as Freud says, 'is the source of everything'. This is the place where all the earnings of our abilities are accumulated, fertilised and breed to new ideas which comes out in the forms of desires, preferences, choices or decisions in response to the differential environmental conditions. Whether it is external or internal desires - there is always a connection with our talents just like the network of railway tracks in a massively carge train-yard. This fact can be justified, once again, by quoting the lines run in the preamble to the consitution of UNESCO, which says, "Since war begins in the minds of men it is in the minds of men that the defences of peace must be constructed." So it is the mind which is responsible for both war and peace. In the same manner, it may be stated that whatever is going to express by an adolescent is partially or fully the product of his endowments (talents) of course, in response to the environment. Even in the case of expressing desire or preference for certain vocations by a teenager can be linked up with his talents.

Thus, in the light of the above discussion, it may be concluded by requoting Holland (1966) that, "The choice

of an occupation is an expressive act which reflects the person's motivation, knowledge, ability and personality." So does the ability of a teenager and his vocational preference.

1.3.4. Vocational Aspect of New Education Policy

The programme for vocationalization of higher secondary education was first initiated in 1976 with the appearance of a document "Higher Secondary Education and its Vocationalization", published by National Council of Educational Research and Training (NECRT). Since then, it has been implemented in many states and union territories.

Being aware of the need and importance for diversification of Secondary Education - its vocationalization, the Ministry of Human Resource Development (MHRD), Government of India and NCERT have initiated many actions and made many proposals.

However, in spite of all these efforts, the scheme of vocationalization of education has not yet picked up in many states until recently. There have been many factors responsible for the slow implementation and progress such as, absence of a well-coordinated management system, unemployment of vocational pass-outs, mis-match between demand and supply, reluctance in accepting the concept by the society,

absence of proper provision for professional growth and career advancement for the vocational pass-outs etc. Renewed efforts are being made in many states to accelerate the progress. Therefore, urgent steps to strengthen the vocational education system are imperative, the New Policy Urges.

1.3.4.1. Programme of Action

The policy statements concerning the system for vocationalization have been clustered with reference to inter-related objectives, properties and programmes into four key areas so as to ensure logical development of programmes of action. These areas include: (i) Development of the system, (ii) Vocational Education Programmes, (iii) Programmes for special groups and out of school population, and (iv) Targets and preparation for development.

For facilitating employment, steps will be taken to change recruitment rules for selection in government departments at central and state levels and public sector in order to give weightage to vocational stream graduates in posts appropriate to their vocational courses. For this purpose, a Monitoring and Evaluation Cell (MEC) in the Bureau of Vocational Education will be set up with proper linkage to Central Institutes of Vocational Education (CIVE), NCERT, and other concerned agencies.

Giving heed to the principles and proposals of the New Education Policy, now, many states, in the country, have started implementing the new uniform pattern of education and its programme of vocationalisation at secondary stage. Decision has been made in Nagaland too, that the new pattern will start functioning in the state from 1990 academic session onwards. Introduction of SUPW in the curriculum of lower classes has been done in the schools of Nagaland. Survey work concerning introduction of vocational subjects at pre-university level of education has also been under way.

1.4.0. Conclusion

From the discussion, it can be concluded that the Nagas are a distinct group of people which have its own cultural identity and traditional ways - constituted by different tribes and sub-tribes. Among them Angami and Ao are the two major advanced tribes which have similarities as well as marked differences as Naga tribes. Quite a good number of brilliant youngsters from the two tribes have already come out and shown their excellency in various fields, yet many are still in the budding stage looking for help.

It has also been seen that creative thinking is the kind of thinking process which goes for finding new ways or solutions to problems. It plays a vital part in man's

life. It is this power of man that has crowned him to be the master of creation. Man's long journey from stone-age to space-age is simply the story of his series of creative works. In fact, the hope of future peaceful existence of mankind depends upon this rare quality.

On the other hand, 'vocation' as defined by Webster Merriam (1971) is a 'strong inclination to a particular state or course of action. It is the special function of an individual or group.' Preferring of right vocation at the right time often became a factor responsible for future success in life (Merdan, quoted by Kochhar, 1984).

It is mainly on the basis of the differences the two tribes (Aos and Angamis) have which give a good reason for a comparative study of the vocational preferences and creative thinking of the two groups of teen-agers who are brought up in the two distinct cultures, that the investigator took interest and decided to take up this study.

THE ANGAMIS



A SITTING PLACE



ANGAMI COUPLE



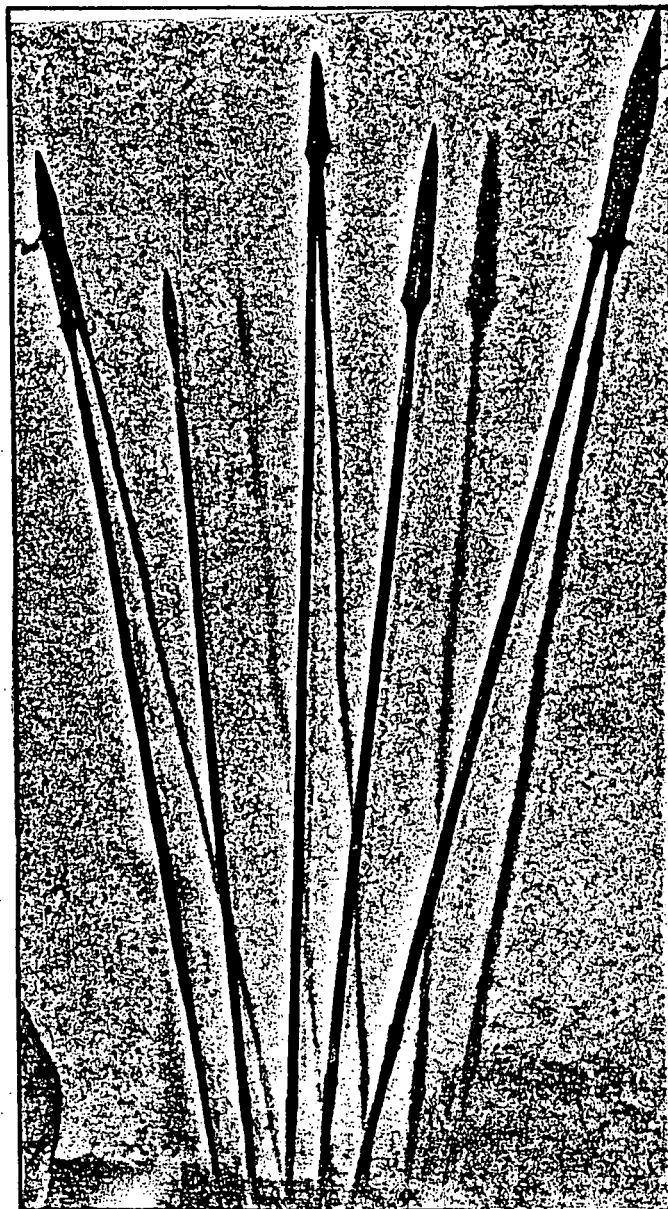
TRADITIONAL CANE BRIDGE



TUG-OF-WAR - A VILLAGE SPORT



ANGAMI WARRIOR



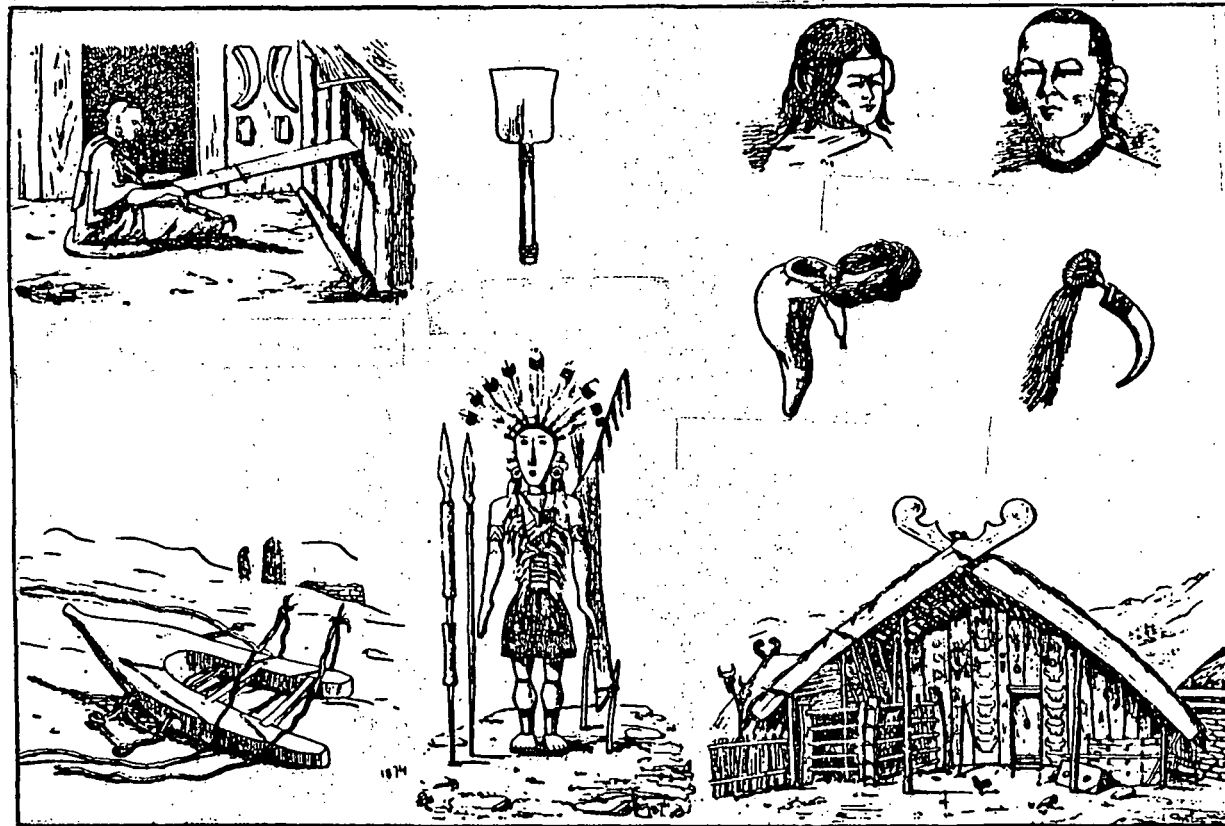
DIFFERENT TYPES OF ANGAMI SPEARS



ANGAMI DANCE



TRADITIONAL KHEZAKHENOMA STONE

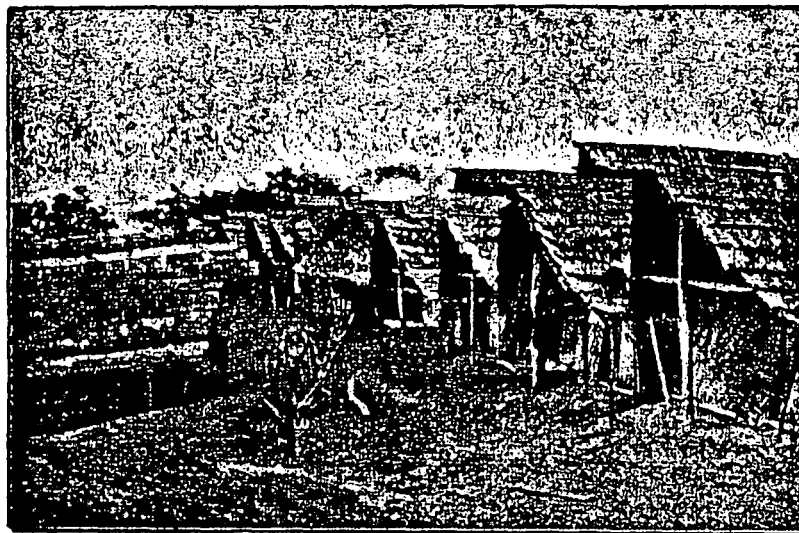


REMINISCENCE OF ANGAMI CULTURE

THE AOS



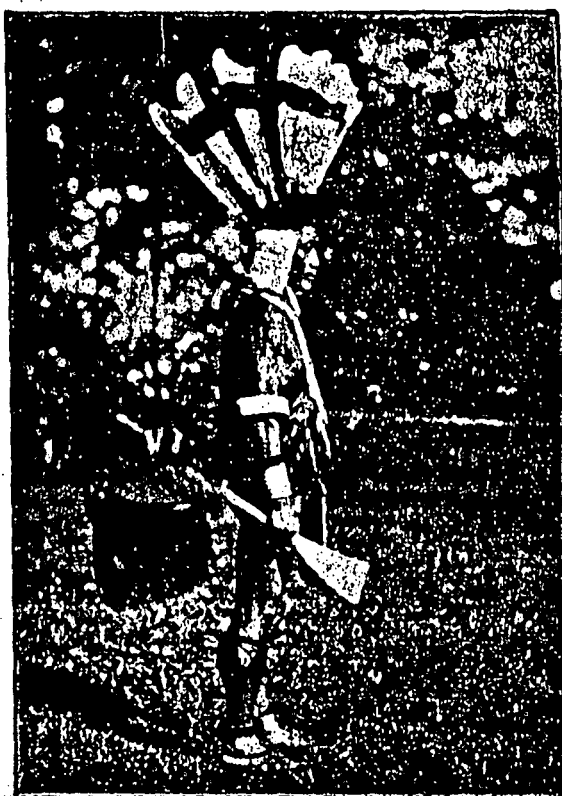
PROCESSIONAL AO DANCE



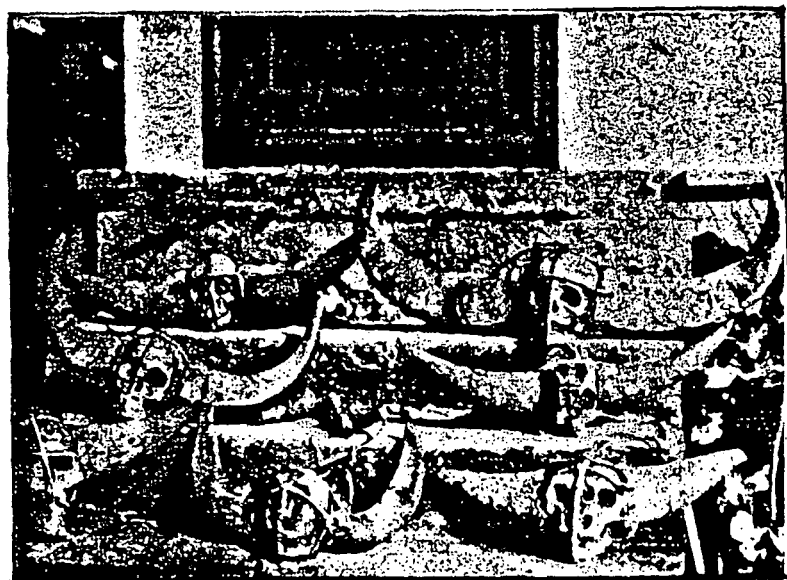
TYPICAL NAGA-HOUSE



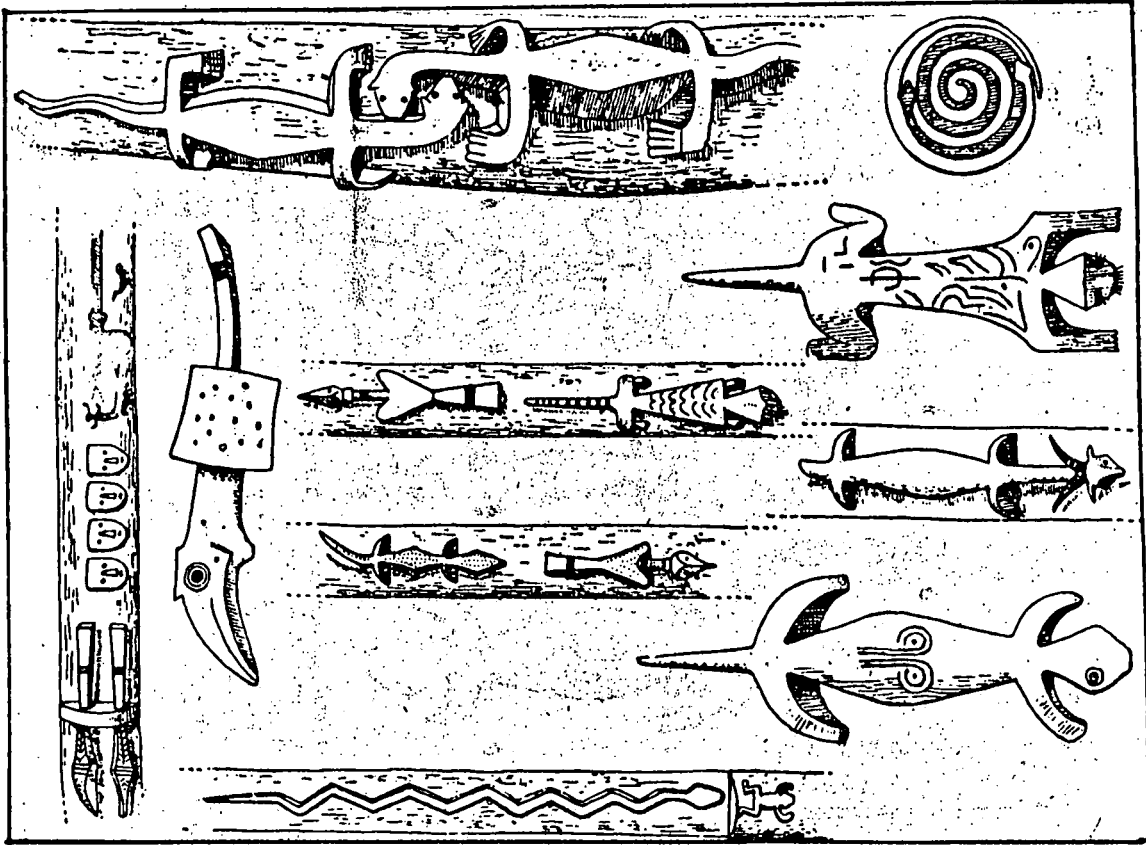
LIMBS OF A SLAUGHTERED ENEMY



AN AO HEADMAN



HUNTED-HEADS WITH MITHUN HORNS



CARVED FIGURES ON THE WALLS OF MORUNG



AO MORUNG



A KIND OF OFFERING FOR RAIN

CHAPTER II

REVIEW OF RELATED LITERATURE

REVIEW OF RELATED LITERATURE

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REVIEW OF RELATED LITERATURE

2.0.0. Introduction

In the previous chapter an attempt has been made to give the theoretical background of the study along with definition of the basic concepts. The present chapter is devoted to review of related literature. The review has been done under three sections: (i) Indian and Foreign Studies on Creative Thinking; (ii) Indian Studies on Vocational Preferences; and (iii) Foreign Studies on Vocational Preferences. The sections are again divided into a number of sub-sections.

The main objectives of this review are to identify the problem and its significance, establish an empirical foundation, find out trends and identify gaps in researches on creative thinking and vocational preferences, and use them for generating hypotheses to be tested and for interpretation of the findings of the present study.

2.1.0. Studies on Creative Thinking - India and Abroad

The reports of the Indian studies on creative thinking under present review are collected from different research journals, masters and Ph.D. dissertations, first, second and third survey of Research in Education in India by Buch

(1974, 1979 and 1983). In the same way, studies on creative thinking abroad are also collected from research journals and various other sources. In these studies creative thinking was studied in relation to different variables which promote and demote creative thinking in children. For the sake of convenience as well as for finding relevance to the present study, the available studies are reviewed under the sub-headings like sex and creative thinking, locality and creative thinking, value and creative thinking, academic subjects and creative thinking, personality and creative thinking. It may be noted here that since these variables are not directly relevant to the study, their review was done by adopting the generalisation method.

2.1.1. Creative Thinking and Sex

Quite a few Indian and foreign studies have been reviewed in this section. Passi (1971), Bedi (1974), Rawat and Garg (1977), Arora (1978) and Jarial (1981) found that girl students were significantly superior to boys on verbal creative thinking. They were also significantly superior on non-verbal creative thinking as reported by Bedi (1974) and Jarial (1981). Raina (1971) and Goyal (1973) found that girls were significantly superior only on fluency and flexibility dimensions of creative thinking. Singh (1978) reported that girl students were superior to boys in fluency and origi-

nality dimensions of creative thinking. Hussain and Hussain (1975) and Jarial and Sharma (1981) also found girls students to be superior to boys in originality dimension of creative thinking. Chadha and Ghose (1985) reported females scored higher than the males on all the 4 components of creative thinking.

On the other hand, in studies conducted by Gagneja (1972), Jain (1972), Rawat and Agrawal (1977), Badrinath and Satyanarayan (1979) and Sharma (1979) found boys significantly superior to girls on verbal creative thinking. On the non-verbal creative thinking too, boys were significantly higher than the girls (Passi, 1971). Raina (1971), Dhir (1973), Awarthes (1979), Badrinath and Satyanarayan (1979) and Pandey (1980) have reported that boys were significantly superior to girls on originality.

Again in some studies conducted by Raina (1970), Gakhar (1974), Dutt, et al. (1977), Lal, Singh and Thorat (1977), Singh (1978), Gupta (1979) and Pandey (1980) have found no significant difference between boys and girls with respect to verbal creative thinking. No significant difference was found between boys and girls on non-verbal creative thinking (Vohra, 1975).

Kelley (1965) on a sample of fourth grade students found that boys were observed significantly more creative

than girls on non-verbal creative thinking measures. Strauss and Strauss (1968) conducting a wider cross-cultural study observed clear cut sex differences in American and Indian student populations. In both the societies boys were significantly high creative than girls.

The American boys had been found significantly higher on most of the measures of verbal originality (Torrance, 1962, 1965; Torrance and Aliotti, 1964) as well as semantic flexibility (Guilford, 1964) and total flexibility (Harlow, 1967) than what girls had scored.

Again, there are many studies where females' creative thinking is reported higher than the males. Yamamoto (1960) found that girls were high on creative thinking than boys in spite of boys being higher on their IQ scores than girls. Neufeld (1964), Dauw (1966), Littlejohn (1967) and Fletcher (1968) reported girls creative thinking higher than boys. Bowers (1971) studied 36 males and 35 female undergraduates and found that women showed higher scores on creative thinking than men. Certain studies which took up different indicators (dimensions), of creative thinking to see the sex differences, and found results in favour of females (Torrance and Aliotti (1960), Guilford (1964), MacGregor and Smith (1965), Torrance (1965).

On the other hand, certain studies by Pogue (1964), Olshin (1964), Castle (1965), Mayhon (1966), Kartsen (1968), Jackson (1968), Burns (1969), Helson (1970), Torrance and Phillips (1971), Kloss (1972) and Ward and Cox (1974) have shown that there is no sex difference with respect either to creative thinking in total or most of the creative thinking abilities.

In the light of the reviewed discussion which supported either boys or girls superiority in both Indian and foreign studies, it may be concluded that sex acts as an important correlate of creative thinking. But at this juncture it may not be proper to conclude that which particular sex is superior to the other in creative thinking. The topics may be still opened to comprehensive research.

2.1.2. Creative Thinking and Locality

Sharma (1972, 1974) reported rural students are more creative than their urban counterparts. Azmi (1974) again confirmed the superiority of rural children to urban children by utilizing Mehdi's tests.

But studies conducted by Passi (1971), Singh (1977), Srivastava (1978), Singh (1978), Singh (1979), Singh (1980) and Pandey (1981) reported the superiority of urban students to rural students in their creative thinking.

Pandey and Rai (1988) found urban students' superiority over rural students in their creative thinking.

On the contrary, Aaron, Malatesha and Marihal (1969) study among rural and urban students arrived at the conclusion that there is no significant difference between the two groups of students. Sehgal (1978) also reported to have found no difference between the two groups.

Though, it is obvious from these few studies about influence of locality upon the creative thinking of rural and urban students, yet it is still difficult to conclude, which of the two groups of students, is more creative than the others.

2.1.3. Creative Thinking and Values

Misra (1978), Kumar (1978) and Pandey (1980) reported from their respective studies that various value patterns which were more prominent in high creative students were social service, independence, variety, knowledge and aesthetic sense. Singh (1977) and Singh (1978) reported that economic values were more prominent in high creatives, whereas, Paramesh (1970) and Misra (1978) reported that this value was more prominent in average and low creatives. Kumar (1978) found theoretical values were more prominent in high creatives, but they were found rather more prominent among low creatives

(Singh, 1977 and Singh, 1978). Misra (1978) also found power being more dominant among low creatives. On the other hand, Singh and Gupta (1977) found no relationship between traditional values and creative thinking, and no significant difference was found between creative and non-creative pupil - teachers value patterns (Pandey, 1980).

From the review of these available studies, it may be concluded that values possessed by high creatives differs from that of average and low creatives. However, it is still difficult to say what values specifically possessed by high creatives, average creatives and low creatives, for which extensive research is needed.

2.1.4. Creative Thinking and Academic Subjects

So far some attempts have been made through some studies to find out whether or not the students from different academic streams viz. science, arts, home science and commerce differs among themselves with respect to creative thinking. It was reported from the studies conducted by Srivastava and Jha (1977) and Srivastava (1978) that science students were superior to arts and commerce students as far as their achievement in creative thinking is concerned. Awasthy (1979) also found science students significantly higher than arts students in fluency and flexibility components of creative thinking. Jarial (1981) reported that the science students

were superior to arts students in non-verbal creative thinking but in verbal creative thinking arts students were significantly superior to science students. Commerce students were significantly superior to science and home science students in verbal creative thinking, while science students scored significantly higher than the home science students in verbal creative thinking.

But in certain studies, it was reported that there was no significant difference in verbal creative thinking between the groups of arts and science (Rawat and Garg, 1977), between arts and commerce students (Srivastava and Jha, 1977) and between science and commerce students (Jarial and Sausanwal, 1979). From these studies it may be pointed out that there is difference in creative thinking among arts, science, home science and commerce students. However, it may not be very timely to conclude regarding superiority of one course upon another.

2.2.0. Indian Studies on Vocational Preferences

Quite a few studies on vocational preferences have been conducted in India. Some of the relevant (indirectly) studies are reviewed under different headings in this section.

2.2.1. Determinant Factors of Vocational Preferences

Under this sub-section findings of five studies have been reported.

Singh and Prasad (1962) in a study on occupational stereotypes reported that occupational stereotypes to be the most potent determinants of occupational choice, a considerable number of students showed absence of knowledge about occupations, and teaching was reported to have the most prestige and came out as the most preferred occupation.

Syed (1967) in another study on occupational determinants of 200 doctors, engineers, lawyers and teachers found that none of the groups such as medicine, engineering, law, teaching etc. were influenced by father's occupation. A large portion of all the groups were reported that they were being influenced by their teachers in making an occupational choice.

Sharma (1970) in his study on 'occupational prestige and vocational choices' found differences in prestige ranking of rural and urban boys. Ten most prestigious occupations popular with urban boys in order of prestige were - physician, scientist, army captain, mathematician, collector, college teacher, chemist, bank manager, engineer and surgeon. Ten most prestigious occupations popular with rural boys were pilot officer, physician, scientist, army captain, surgeon, mathematician, collector, college teacher, nuclear physicist and lawyer. Most of these occupations were common except that jobs of chemist and bank manager are more popular with urban boys while that of pilot officer and lawyer are most alluring to rural boys.

Yadav (1979) in his study on "Motives for Vocational Preferences of Adolescents" discovered that (i) intelligence and socio-economic status were two factors which start influencing the vocational preferences of the adolescents much earlier at the time of choosing their study. Intellectually brighter and economically well-off students went to science and commerce streams and poorer ones to arts, and in turn their vocational preferences were, by and large in tune with their courses of studies; and (ii) intellectually and academically and economically superior adolescents were more definite and specific in their occupational choices than their opposites. Kanungo (1960) found prestige of the occupation as one of the important factors of vocational choice among the students.

From these few available studies on determinant factors of vocational aspirations, it may be stated that vocational preferences of students may be influenced by many factors like intelligence, SES, teachers and prestiges of the occupations.

2.2.2. Vocational Preferences

Many students aspired after different types of vocations though it is difficult to say what type of vocations they basically preferred. However, the review of the following few studies has thrown some light on the topic in question.

Bardhan (1965) studied the development of interests among the boys of secondary schools in Calcutta with reference to four elective courses viz. Humanities, Science, Technology, and Commerce. The findings of the study revealed that a good amount of prediction of success could be made on the basis of interest measurement of school boys of Class VIII, and the boys' interests were remarkably stable from Class VIII onwards.

Patel (1967) made a comparative study on recreational, socio-cultural, intellectual and occupational interests of high school pupils in Gujarat. The main objective of the study was to identify various type of interests among school population, and also to find out the difference in interests, if any due to age, sex, rural-urban origin and cultural habitats. The findings showed that travel and sports activities received first and second preference among recreational activities. Among the professions - medicine and engineering had maximum preference while clerical works had minimum appeal. On a comparative analysis it was found that the differences in interests on the basis of age and sex were significant.

Singh (1967) investigated the pattern of vocational and educational interests of adolescents. The main purpose of the study was to test the hypothesis regarding the differences in interests on account of sex and rural-urban origin,

and the relationship between the educational interests and vocational interests in the courses of study. The findings revealed that the educational and vocational interests were not in agreement and thus they were found not directly related, and urban and rural girls differed significantly with regard to vocational interests in literary, constructive, aesthetic, agricultural, social service, and household vocations but interests in scientific, commercial and persuasive areas was equal. The same is the case with boys.

Bose (1970) also conducted a study on "Interest Patterns of Students of Science, Humanities and Commerce Stream at the Higher Secondary Level." The study attempted to develop typical interest patterns for the three different areas of studies. The study concluded that the interest pattern for all the groups were not identical and pair-wise comparison indicated that there was a wide variation between the groups in this respect. However, the similarities and dissimilarities in the interest patterns for different groups could provide adequate aid in a guidance situation.

Grewal (1971) studied the educational choices and vocational preferences of secondary school students in relation to environmental process variables. The sample consisted of 127 boys and 26 girls from the urban schools and 126 boys and 50 girls from the rural schools, all in the age group

of 14 to 21, was randomly drawn from the higher secondary schools of Bhopal and Indore. The findings revealed that (i) rural and urban students studying humanities and science differed significantly; (ii) boys differed significantly from girls in their levels of vocational preferences; and (iii) significant relationships were found to exist between vocational environments of home, community and level of vocational preferences, etc.

Rai (1971) conducted a study on vocational preferences of students of Class X in the State of Haryana. The study revealed that all the students under study have given their first preferences for nine different vocations after which they want to plan for their professional careers, were Medicine, Teaching, Law, Military, Engineering, Business Management, Politics, Agriculture and Science.

Urmila (1976) in another study of vocational preferences of urban and rural students reported that urban students preferred Engineering, Medicine, Law and Military services whereas majority of rural students preferred Agriculture and Teaching.

Chadha (1979) conducted a study on some psychological and sociological factors related to vocational preferences of rural and urban high school pupils. The study concluded

that the urban boys aspired for Engineering, Protective and Health occupations whereas the rural boys aspired for Teaching, Welfare and Engineering vocations.

Yadav (1980) in his attempt to find out relationship between values and vocational preferences of adolescents, reported the following as findings: (i) significant relationship has been observed for the jobs related to the area of physical science. The students having higher theoretical values have shown their preferences for becoming physicists, inventors, engineers etc.; (ii) Positive relationship between economic values with their preferences to become accountants, bank managers, auditors, cashiers, tax-specialists etc.; and (iii) all the students under the study have shown political value as the highest and aesthetic value as the lowest.

Raina (1987) launched a study on vocational preferences of secondary school pupils of Kashmir valley with the objectives: (i) to find out most preferred vocations of Class X students; (ii) to study whether there is any difference in the vocational preferences of economically well-off and backward students; and (iii) to find out the differences in the vocational preferences of rural and urban boys. The sample consisted of 400 students of Class X of 12 selected schools (i.e. 200 rural and 200 urban). The findings revealed that (i) there was no significant difference between rural

and urban boys of Kashmir valley in their preference of 25 vocations; (ii) the higher income group students preferred mostly the vocations like Engineering, Medicine, Tourism, Hotel Management, Police, Business, Announcing and Composing while boys belonging to the low income group preferred Teaching, Agriculture, Typewriting, Forestry, Arts and Crafts, Diary Farming. On the other hand, the middle income groups boys preferred the vocations of Fishery, Police Service, Medicine, Typewriting, Tourism, Hotel Management, Announcing and Composing and Radio, Television Mechanic; and (iii) the vocational choices of Class X students in rank order showed that professions of Engineering and Medicine with the means of 6.04 and 5.58 respectively, were more preferred. The least preferred vocations were Library Science, Diary Farming and Spinning and Weaving.

Sharma and Verma (1987) investigated on vocational interests of pre-adolescent boys and girls with the objective to find out their future vocational career interests. The findings of the study revealed that the girls were significantly more interested in Literature, Scientific, Transport and Communication, Commerce, Agriculture and Professional fields of vocational interests than their counterparts. However, no significant difference was observed between the two groups with reference to the field of defence.

It can be stated from the reviewed studies in this section that most of the high school pupils have their preferences for different vocations. Another trend that could be seen is also that boys and girls; rural and urban pupils seem to have difference in their vocational preferences. However, confirmation of the matter can be a gap of further research interest.

2.2.3. Vocational Preferences and Creative Thinking

Quite a good number of studies have been conducted on the pattern of vocational aspirations of creative adolescents. A few of them are reviewed and reported here under this heading.

Tripathi (1969) in a study under this heading concluded that the creative children more often chose vocations which were rather unusual and which provide greater scope for the expression of creative talent like the work of an inventor, dancer, actor, musician, writer, adventurer and explorer. The high IQ group more often chose the traditionally respectable occupations like doctor, engineer, lawyer etc.

Paramesh and Narayan (1976) conducted a study on 'Creativity, Intelligence and Vocational Interests'. The main purpose of the study was to compare the vocational interests of high and low creative college students. The study concluded

that high creatives were significantly higher than the low creatives with respect to their interest in persuasive, linguistic, artistic and musical interests areas. Pandey (1976) in another study on Adjustment, Values and Vocational Interests of the Supernormal and Normal Adolescents found that the supernormal adolescents develop better vocational interests than normal adolescents. The study also found that increase in age, education and intelligence brings betterment to vocational interests of adolescents.

Bardwaj (1978) in a study on vocational interest as function of creativity found that creativity had a high influence on students interest of different vocational pursuits.

Ghosh and Gordon (1979) in their study on self-concept and vocational preferences among girls found that pupils of high self concept having high vocational aspiration and conversely pupils with low self concept having low vocational aspiration.

Bhadauria (1980) reported that gifted and non-gifted students differed significantly in the criteria, procedures and model of success. However, the difference in accepting the general means for achieving success was not significant.

Tiwari and associates (1980) investigated on self-concept and level of aspiration of school going children.

They concluded that there was high positive significant relationship between self-concept and level of aspiration of boys and girls.

Mehta and Singh (1981) from their study on verbal creative thinking related to educational and vocational aspiration reported that high creatives preferred unconventional occupation as air-hostess, lawyers and scientists whereas low creatives preferred conventional occupations as teaching. The creative children more often chose vocations which were rather unusual and which provide greater scope for the expression of creative talent like the work of an inventor, dancer, actor, musician, writer, adventurer and explorer. The intelligent children more often chose the traditionally respectable occupations like doctor, engineer, lawyer etc.

Again, in studies conducted by Rawat and Garg (1977) and Singh (1981) have shown that there is no significant relationship between creative thinking and vocational aspiration. The main objective of Singh's study was to find out the nature and extent of relationship between creativity and level of aspiration, and also to find out the difference in the aspiration level of high and low creatives. The findings showed that no significant relationship existed between creative thinking and level of aspiration. Further, high and low creatives did not differ in respect of their levels of aspiration.

It may be stated from this section of the review that creative thinking and vocational aspiration have a fairly high degree of relationship though certain studies findings have shown reversely.

2.2.4. Vocational Preferences and Miscellaneous Factors

Mehta (1960) reported the findings of the employment pattern survey of the Alumni of Delhi University conducted in 1958. The main findings were that about 30 per cent entered a career without any vocational aim, and 28 per cent completed their entire career without developing any aim. An examination of the reported studies on occupational aims of students of our country (India) by Grewal (1980) has shown 'an utter lack of realism (aims) on the part of students'.

Some of these studies also throw light on the fact that many of the youth go through their studies without a realistic approach to their vocational preferences.

Another important factor which has an important impact on the vocational aspiration of students is culture. In many cases, vocational aspirations of the students confined within the bound of the culture concerned. For example, the ancient Indian culture gave a definite classification of occupation of occupation based upon the caste system. We know that there is a mention of the occupations of all Varnas in the Hindu

scriptures. According to the Law of Manu (Max Muller, 1964), functions of the four castes, viz., Brahmins, Kshatriyas, Vaishyas and Sudras were definitely specified.

To Brahmins he assigned teaching and studying, sacrificing for their own benefit and for others, giving and accepting (of alms).

The Kshatriyas he commanded to protect the people, to bestow gifts, to offer sacrifices to study and to abstain from attaching himself to sexual pleasures.

The Vaishyas to tend cattle, to bestow gifts, to offer sacrifices, to study, to trade, to lend money and to cultivate land.

One occupation only the Lord prescribed to the Sudras was to serve meekly even these three (other) castes.

Sharma (1968) from his study on Indian culture and occupational classification, remarked:

"Having developed from varna system the occupations in caste system are definite. In Hindu society even today, in most cases the son of a blacksmith pursued the occupation of his father, the son of a carpenter becomes carpenter while the son of a shoe-maker becomes a shoe-maker."

From this study also it may be pointed out that the culture concerned has a strong influence on the vocational

interest of the students. The same is still true to some extent that there are certain vocations which are considered more prestigious even in Naga culture such as Missionary, Pastor, Gaonbura, Pianist (Church) etc. although they are not so prestigious in other cultures.

Thus, sectionally, it may be concluded that in India, the vocational preferences of students have been influenced to some extent by the factors like intelligence, creative thinking, culture, vocational prestige and persons (teachers etc.).

2.3.0. Vocational Preferences and Creative Thinking Among the Tribals

So far, a few studies have been conducted on vocational preferences among the tribals in North East India. Among them only 9 studies are found indirectly relevant to the present study. In the same way, among the few studies conducted on 'tribal creativity' only 5 studies could be reviewed (this is also due to non-availability of research literature). They are given in this section of the review.

2.3.1. Vocational Preferences

2.3.1.1. Tali (1977) conducted a study on vocational aspiration of Class X pupils in some schools at Mokokchung Town, Nagaland. The chief objective of the study was to find out

pupils' vocational aspiration along with factors influencing it and to compare them on the basis of sex, SES and to suggest measures in the light of the findings.

The sample of the study consisted of 230 pupils drawn from three co-educational schools. The major findings revealed that (i) the vocations most aspired after clustered around few common vocations like Medicine, Engineering, Teaching. While non-aspired after were Agriculture and self-employment oriented vocations; (ii) vocational aspirations between boys and girls was found significantly different. Girls show considerably greater interest than boys in professions like Doctor, Nurse and Teaching, Law and Office work while boys have more interest than the girls in vocations based on a study of science and technology, All India Services, Defence, Commerce, out of door and Politicians; (iii) urban pupils were found aspiring after prestigious vocations whereas rural pupils were aspiring after both high and low status jobs.

2.3.1.2. Pariat (1982) launched a study on vocational aspirations of Class IX pupils of some schools in Shillong. The sample consisted of 270 pupils drawn from nine schools. The main objective of the study was to identify pupils' vocational aspiration and sources of information and factors influencing their choice.

The findings showed that (i) majority of the pupils had made vocational choice with vocations of Medicine and Engineering scoring highest while very few preferred for politics and agriculture; (ii) pupils from educated and well-off families, who went to private schools, aspired for more prestigious jobs than pupils from government and aided schools; and (iii) pupils vocational choice was unrealistic as the parents and teachers gave no proper guidance and information and as the choice was made early.

2.3.1.3. Rawat (1982) conducted a study on factors affecting the career choice of adolescents in some high schools of Shillong. The main purpose of the study was to find out factors influencing and guiding pupil's career choice and the type of vocations they prefer and compare them in terms of sex. The sample consisted of 200 Class X pupils drawn from seven English medium schools.

The major findings revealed that (i) The factors that influenced pupils choice were family socio-economic status, school and teacher; (ii) Pupils showed a tendency for choosing better occupations than the occupations of their parents; (iii) Boys were found interested in Engineering, Science and Technology, whereas girls had greater interest in Administrative Services, Medicine, Teaching and household work; and (iv) Teachers were found to give more occupational guidance

to boys, while parents, on the other hand, guided girls more than boys. But most of the girls wanted to settle down as housewives whereas boys were determined to take up a vocation in future.

2.3.1.4. Aithuama (1982) conducted another study on vocational aspirations of Class X boys and girls in Aizawl town, with the objective to find out and compare the vocational interest of boys and girls and also to find out the sources of information and factors influencing their vocational aspirations.

The major findings showed that (i) the most aspired vocations were Administration (boys) and Medicine (girls). Though they aspired after prestigious jobs, they were not well informed of the nature of the service and the qualification it requires. As they chose their vocations without the guidance of teachers, it further proves to be unrealistic vocational choice; (ii) pupils vocational choice was found influenced by their parents but not by their reading materials, hobbies, radio programme and optional subjects offered at schools; (iii) the main reason of choosing vocations was found for self-satisfaction and decent living.

2.3.1.5. Chakravorty (1983) investigated educational and vocational aspirations of high school adolescents in Shillong with the objective to find out their vocational interests

and reasons for selecting a particular vocation. The findings showed that most of the students aspired after non-traditional occupations such as Engineering, Physician, Professor, Mechanic, Electrician. With regard to reasons for vocational choice, about 5% of the adolescents think that they liked the particular vocation because of the work involved in the vocation. Other reasons given are, the vocation chosen will help to serve the nation, rapid progress in the vocation and fulfill parents wish.

2.3.1.6. Jagdishchand (1985) conducted a comparative study on self concept, SES, vocational and educational aspirations and academic achievement of pupils belonging to three Naga tribes (Angami, Ao and Sema). Some of the major objectives of the study are: (i) to find out the differences in vocational choices of the pupils belonging to the three tribes, and (ii) to find out reasons for their choice of the particular vocations. The sample of the study consisted of 674 pupils of Class IX belonging to the three tribes, drawn from 10 high schools of three districts namely, Kohima, Mokokchung and Zunheboto.

The major findings showed that:

- (i) While Sema pupils were found to be significantly different from Ao pupils as regards to their vocational choices, they were found similar to their Angami coun-

terparts. But the Angami and Ao pupils appeared similar on the same variable;

- (ii) The boys belonging to the Angami and Sema tribes were found to have significantly different vocational choice than the girls in the respective tribes, whereas no such differences was noticed between boys and girls of Ao tribes;
- (iii) The vocational choices of girls belonging to the three tribes were not found to differ significantly from one another; and
- (iv) Out of the 19 possible reasons for vocational choice, 8 reasons were found playing significant role in determining vocational choice of pupils. Majority of the girls belonging to the three tribes reported that they would choose their vocations in accordance with the wish of their mothers. In case of Angami and Ao boys, fathers' advice was reported as playing a significant role in determining their vocational preferences, but for the Sema boys earning from a vocation appeared as an influencing factor in preferring the same.

2.3.1.7. Ramnghinglova (1986) investigated on educational and vocational preferences of college students with the objective revealed in the title. The sample of the study consisted of 200 Pre-University students from 4 colleges in Aizawl

town. The findings indicated that the arts students were taking more interest in the more responsible job as Principals of Colleges or Schools. The Commerce students were more influenced by their subjects as they opted for high income vocations and also preferred only the branches of Commerce subjects. The Science students, on the other hand, preferred to become Engineers and Scientists. Hence, they exhibited a preference for diverse vocations and even showed keen interest to take up teaching as a vocation.

2.3.1.8. Sungoh (1987) conducted a study on educational and vocational aspirations of Doordarshan-viewing Pre-University students in Shillong. The sample of the study consisted of 300 Pre-University students studying in different colleges of Shillong. The main objectives of the study was to find out the educational and vocational aspirations of the students who were exposed differentially (regular, occasional and rare) to Doordarshan. The findings revealed that students who were exposed differentially to Doordarshan have higher vocational aspiration when compared to their educational aspiration. The study further revealed that there was no significant difference in the vocational aspirations of regular, occasional and rare Doordarshan viewers among the students.

2.3.1.9. Recently, Vipralho (1987) launched a pilot study on vocational interest of students in four government high

schools of Kohima town. He found that most of the students were preferring for courses like medical, engineering, teaching, nursing, home science, technical and commerce.

From these nine studies among the tribals, it may be stated that many tribal pupils are also found aspiring after different modern occupations like their non-tribal counterparts. However, it is still difficult to conclude that what particular vocations tribal pupils normally go for and what are the basic reasons behind their choices. For this, comprehensive research is required.

2.3.2. Creative Thinking

2.3.2.1. Dutta (1978) conducted a study on Adjustment Problems of high creative and low creative adolescents studying in Class IX in some schools of Shillong. The sample consisted of 886 adolescents drawn from 18 English medium high schools. On the basis of the findings, the study concluded that there is no relationship between creative thinking and adjustment. That adjustment is dependent upon multiplicity of variables and upon the unique personality characteristics of an individual and not upon the creative thinking of the person alone. Thus, the relationship between creative thinking and adjustment may be positive or negative in case with a particular creative person, but when studied in groups, it gives contrary results.

2.3.2.2. Sreelatha and George (1981) studied effect of creative teaching on creative thinking of Class IX pupils in Shillong with the objective to find out the influence of creative teaching on developing creative thinking in adolescents. The sample consisted of 12 pupils drawn from one English medium school. The findings revealed that creative thinking (verbal & non-verbal) of the pupils could be enhanced by creative teaching technique.

2.3.2.3. Ahmed (1982) investigated the effect of teaching drawing creatively on non-verbal creative thinking of Class VII girls in Shillong. The sample consisted of 20 girls. The study concluded that creative teaching with appropriate use of instructional materials has a great effect on enhancing the creative thinking of girls, and has educational implications to make a creative teacher sensitive to the different ways of improving creative thinking of pupils in the classrooms.

2.3.2.4. Kumar and others (1986) concluded from their study on creative abilities of tribal children in relation to sex and socio-economic status that tribal girls are better than tribal boys on verbal creative thinking, while boys are better than girls on non-verbal creative thinking. The study also revealed that tribal children from low SES are found inferior to high SES group in their level of creative thinking.

2.3.2.5. Pathak (1988), in his study on value orientations of creative tribals found that high creative and low creative tribals are significantly differentiated on theoretical and aesthetic values, signifying that high creative tribals are of high theoretical and aesthetic values. But the high and low creative tribals are not significantly differentiated on economic, social, political and religious values, signifying that the high creative tribals are of low economic, social, political and religious values.

Although these five studies have thrown some light on creative thinking in relation to teaching method and values yet there is still quite a lot more to discover on creative thinking in relation to other correlates. Hence, it is still too early to say about the status of creative thinking among tribals, on the basis of these few studies. Still a more comprehensive study is needed.

2.4.0. Foreign Studies on Vocational Preferences

A number of studies have been conducted on vocational preferences abroad. However, only those studies which are related to the present study were reviewed under different headings in this section.

2.4.1. Vocational Preferences and Self-Concept

Haller (1963) thinks that the person's level of occupational aspiration is determined, in part, by his conception



of himself in relation to the style of life ascribed to that occupational level. Seffire (1966) hypothesizes that the person's job choice is an implementation of only one aspect of the individual's self concept, 'the occupational person'. He suggests that the work aspect of an individual's life can vary from central to peripheral.

Holland (1959) in his study relates the self-concept more directly to the level of occupational aspiration. He suggests that the level of occupational choice within a class of occupations is in part a function of self-evaluations. From this, one may see that the self-concept probably helps determine not only the type of occupation but also individual's level of aspiration within that occupational group.

Theorists like Field, Kehas and Tiedeman (1963) elaborate the role of the self-concept in vocational choice by naming aspects of the self and situation which are considered in making such a choice. They then relate them to vocational aspiration and implementation. They point out: Individuals choose actions which fit their current notions of (i) what they are like, (ii) what they can be like, (iii) what they want to be like, (iv) what their situation is like, (v) what their situation might become, (vi) the way they see these aspects of self and situation being related.

Rosenberg (1965) conducted a study concerning relationship of self-esteem to occupational aspiration of 1300 high school pupils. He explored that, in general, pupils with low self-esteem tended to see their occupational future as one of frustrations.

It may be concluded that self-concept acts as one of the main factors behind the choice of any vocation by a student. It is also seen from this review that the kind of vocation chosen by a student often came out as the satisfactory answer to the question of his self or self-concept.

2.4.2. Vocational Preferences and Work Values

Byers (1945), and Deeg and Paterson (1947) conducted researches which gave the conclusions that prestige (value) is one of the most important factors which pulls people towards occupations. The passage of time and addition of new experiences appear to make little difference in prestige - value of an occupation.

Thomson (1966) in his study found that girls placed more emphasis on job that would permit an expression of one's own ideas, and one where an individual could help others. Students whose fathers were in in low prestige occupations tended to select security positions. This was also true of students whose mothers worked outside the home.

Quite a few studies have conducted on job-value and preferences of men (Centres, 1949), boys (Singer and Steffire, 1954 a), boys and girls (Singer and Steffire, 1954 b) and college males and females (Wogman, 1965). Centres (1949) found social class difference in occupational values while Singer and Steffire found differences in values held by adolescent and adult males. Each of these studies seems to indicate a difference in job values by sex. Women prefer job values of social service while men prefer job-values of profit, power and independence.

Lohnes and Gibbons (1968) investigated shifts in adolescents' vocational values. The inferred values and hierarchies were judged from interviews conducted on 111 boys and girls in 8th, 10th and 12th grades. The results showed that boys gave high rank to personal contacts and social service values. Girls' were people oriented, in that they like to meet people and help them whereas, boys were career or extrinsic reward oriented because they were most concerned with salary, security and prestige. However, the similarities for the two sexes were more predominant than the distance. Both boys and girls were concerned with satisfaction and opportunity to satisfy their interests.

From the review discussion of the studies, it may be stated that value (prestige) of the vocation concerned has strong influence on the vocational preference of pupils,

although it is still difficult to determine the trend toward which value either boys or girls go most.

2.4.3. Vocational Preferences and Pupils Background

Empey (1956) investigated the effects of American cultural ideals upon vocational preferences by comparing the absolute and relative preferences of 12th grade students from different social classes (backgrounds). He has found that the absolute occupational status preferences of male students from middle and upper classes were significantly higher than those of students from the lower classes. He also had found that the relative occupational status preferences of lower class students indicate that they prefer and anticipate having significantly higher occupational status than their fathers.

Thomas (1963) in a study concluded that most of the students prefer for an occupation that has more prestige than the one followed by their fathers. Almost all the students prefer for an occupation which, from the standpoint of training is appropriate to the kind of high school education they are currently following or to one which at least, people with their background would be allowed to enter.

Krippner's (1963) investigation of the association between the levels of junior high school pupils' vocational preferences and the occupational levels of their parents,

revealed that although boys and girls may prefer different vocations than those suggested by their parents, it is likely that these preferences will reflect the family's occupational level, and therefore, the pupil's socio-economic milieu.

In another study by Lee and King (1964) found a number of statistically significant differences between parents occupational levels and their daughters vocational preferences. The mean level of the girls' occupational choices was higher than the mean level of their parents actual occupational level.

Houson (1965) in another study investigated the relationship between 9th grade girls' vocational preferences and their parents' occupational level. The sample included 142, 9th grade girls of lower middle class status of rural areas. The findings showed that the girls' preferences were significantly higher than the fathers' occupations. Mowesian, Heath and Rothney (1966) also reported to have found in the same direction: 'students showed preference for higher occupations than those of their parents'. From the review of these studies, it may be concluded that boys and girls prefer for higher level of occupations irrespective of their social backgrounds or parents actual occupational level.

2.4.4. Vocational Preferences and Age/Sex

Lehman and Witty (1930) studied occupational preferences of 26,878 school children aged 8 to 18, found that there were marked differences in the kinds of vocations they preferred. Both sex and all ages, however, made their choice for three reasons in the following order of preference: money, social approval and easy life.

Parker (1962) in another study of occupational preferences of 29,000 pupils of 7th grade, confirmed the theory of Ginzberg, Super and Hoppock that many plans and preferences are made at the early adolescent period. Peters (1960) also concluded in the same way stating that vocational interest patterns are rather stable during adolescent period and they become more clarified with age.

Gunn (1964) made a study to discover something about the way a child requires concepts of occupational prestige. The study has established that most people above the age of 14 are able to rank jobs according to what they believe are status gradation. Himelweit, Halsey and Oppen (Gunn, 1964) concluded that adolescents had acquired essentially an adult view of the prestiges of occupations they are interested.

The studies appear to point to the fact that pupils, by the time they enter adolescent period, have developed

a fairly clear concept of vocational preference which often helps them in having a realistic preference of vocations in life.

2.4.5. Vocational Preference and Creativity/Achievement/Intelligence

Byrns (1939) studied on Achievement, Intelligence and Vocational preferences and emphasized that different occupations tend to attract boys of different scholastic ability. He pointed out that occupational preferences have some relation to scholastic ability and there are great differences in average ability of pupils in the occupational groups attracting the brightest and those in the groups attracting the dullest. Terman (1942) also pointed out that intelligence may act as a factor in occupational planning and vocational success.

Getzels and Jackson (1962) studied the relationship between occupational choice and cognition as defined by performance on intellectual tasks. For the purpose, they made a study of the career aspirations of highly intelligent and highly creative students. Two experimental groups were formed. It is found that differences between the two groups appeared in both quantity and quality of occupational goals. The quantity and quality of occupational goals. The quantity of occupational possibilities mentioned was significantly greater

for high creatives than the high IQ's. The quality of the different occupations mentioned as possibilities was also significantly different.

Dauw (1966) in another study on career choices of high and low creative students administered Torrance Minnesota Tests of Creative Thinking and their choices were obtained. In the study 23 careers were judged unconventional careers while 21 of the 23 unconventional careers were chosen by 26 highly creative students. The proportion of high creatives chose unconventional career was significantly higher than the proportion of low creatives choosing them.

The findings Gribbons (1966) study on career development and intelligence of boys and girls of 8th and 12th grades clarified that many students stated their preferences for occupations that were in agreement with their measured intelligence. O'Hara (1966) also reported to have found relationship between vocational preferences and achievement of students.

In another interesting study on teacher's influence on students vocational preference by Day (1966) found that 6 per cent of the students modelled a teacher in their vocational preference. About 44 per cent were influenced by teachers in their preferences. The boys were significantly more influenced by their teachers than were girls.

Sectionally (for foreign studies), it may be concluded from the studies reviewed that vocational preferences of students have been positively influenced by factors like Creativity (Dauw, 1966), Intelligence (Gribbons, 1966), Self-concept (Haller, 1963), Prestige value (Thomas, 1963), Sex (Parker, 1962), Teacher (Day, 1966) and achievement (O'Hara, 1966).

2.5.0. Conclusion

From the review, it can be concluded that there is not much difference between the findings of Indian and foreign studies on creative thinking. In both the studies, it is reported that creative thinking of students has been found related to their sex (Sharma, 1981, Torrance and Aliotti, 1964), locality (Pandey and Rai, 1988) although some findings have shown reversely (Vohra, 1975, Rawat and Agrawal 1977, Guilford, 1955, Singh, 1977).

In the same way, the review of the available Indian and foreign studies on vocational preferences have shown that vocational preferences of students have been influenced by factors like creativity (Bardwaj, 1978, Mehta and Singh, 1981, Dauw, 1966), intelligence (Gribbons, 1966), self-concept (Tiwari and associates, 1980), Holland, 1956, Roseuberg, 1965), values (Sharma, 1970, Centres, 1949, Singer and Stef-fire, 1954, Gibbons, 1965), sex (Lehman and Witty, 1930),

culture and other background factors (Sharma, 1968, Ewpey, 1956, Krippner, 1965).

From the few studies conducted among the tribals on creative thinking and vocational preferences, Pathak (1988) reported that there is significant difference between high and low creative tribals in their perception for certain values (jobs). Other studies conducted by Tali (1977), Pariat (1982), Rawat (1982), Aithuama (1982), Chakravarty (1983), Jagdishchand (1985), Ramnginglova (1986), Sungoh (1986) and Vipralho (1987) have shown that tribal pupils preferred for different modern vocations like their non-tribal counterparts. These studies have also shown that boys and girls differed in their preferences for vocations although some similarity could be seen on certain vocations.

However, so far no study has been found reported on vocational preferences and rural-urban creative pupils, comparative study of tribal and non-tribal pupils' creative thinking etc. which can be some of the gaps in research among the tribals - particularly in the North East. Hence, this study was undertaken.

CHAPTER III

METHODOLOGY

METHODOLOGY

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METHODOLOGY

3.0.0. Introduction

In the preceding chapters attempts have been made to give the theoretical background of the study and review of the related literature and its significance to the present study. The present chapter is devoted to describe the method, procedure and techniques used in tool construction, description of the tools, measurement of creative thinking and vocational preferences of pupils in Kohima and Mokokchung districts.

3.1.0. Rationale of the Study

Proper choice of vocation has become one of the most difficult problems facing the tribal adolescents in the fast changing world of science and technology. Every adolescent regards future vocation as an important factor for success in life and self fulfilment. However, proper vocational planning requires knowledge of one's own abilities, aptitudes, attitudes, personality characteristics as well as realistic knowledge of the changing world of work. Occupational preparation is ultimately linked to the task of education. Now, education is fast becoming more and more purposeful, goal-directed, futuristic and fruitful and thus makes the future

more or less the direct consequence of what teachers and pupils do in the classrooms as a creative response to the problems that already exist. That is why the Indian Education Commission (1964-66) has rightly observed in the beginning of its report "The destiny of India is now being shaped in her classrooms."

The future is inherent in the present as the present was inherent with the past. The present choices of pupils on the basis of their past experiences and natural endowments are the building blocks of the citizens of tomorrow. By consciously directed effort of the pupils and their "significant others", it is possible to extrapolate their future vocation, to telescope their future, to shape and control future, to reduce the intrinsic uncertainty of the future to manageable proportions and to reduce the future shock, so that their dreams of future are realised in actual life. It is the task of education to tame and humanise the future and to enlarge the range and effect of human choices for preferable future.

In the light of the 'New Education Policy', one of the purposes of secondary school education is to enable the pupils to take a rational, wise and mature decision about their future vocation taking into consideration the level of human capital developed and the potentialities for further development in their life span. A number of factors may affect

the vocational preferences of high school pupils in tribal areas, such as educational aspirations of pupils, educational background and occupation of parents, creative thinking, school facilities, local situations, self esteem and future orientation, as well as social prestige of vocations/occupations.

Thinking is considered as the most unique gift to mankind. All animals are endowed with memory, instincts and emotions but lack man's thinking power. There are two types of thinking; convergent thinking related to intelligence and divergent thinking related to creativity. Guilford, the father of creativity, is of the view that in creativity, it is divergent thinking that plays a major role. Generation of new ideas is possible when thinking is in different directions. Guilford's 'Structure of the Intellect Model' is considered as a touchstone in the interpretation of human abilities.

The process of creative thinking is highly useful in daily life. Almost every phase of life activity is in dire need of uranium like people (creative people) with vision, originality, initiative and ingenuity. To bring all time solutions to war, famine, population explosions, environmental degradation, pollution, industrialisation, communal and regional strifes, lawlessness, corruption, drug addiction, sex rampage and incurable diseases, a revolution in thinking

is required. So it is necessary to identify the creative minority at school stage. Discovering the talent in the early age, nourishing it to germination, flowering and fruition for individual welfare as well as for the society by placing them in the right engagement or occupations permitted by their talent, became the most important challenge of education in the tribal belt of this region in particular and the country in general.

Taking into consideration the need of vocational education in the tribal areas, and also the growing need of creative thinking and proper vocational preferences of the tribal teenagers, need was felt to identify high creative and low creative pupils at school stage and give them special care for enriching their creative talent and fulfilling their vocational need in life. Besides, the study is also aimed at to contribute: (i) a battery of verbal and non-verbal tests of creative thinking; (ii) a vocational prestige scale for convenient vocational choice of pupils; (iii) identification of high creative and low creative pupils; and (iv) suggestions for improvement of vocational guidance in the schools and enriching of creative thinking among the high school tribal pupils in Nagaland. In the light of the facts mentioned (in Section 3.1.), the present study was undertaken.

3.2.0. Statement of the Problem

The problem under investigation was stated as "A study of Vocational Preferences of High Creative and Low Creative High School Tribal Pupils in Kohima and Mokokchung Districts, Nagaland."

The main problem was sub-divided as:

- What are the vocational preferences of tribal adolescents in Class IX among Aos and Angamis in Nagaland?
- What are the levels of their creative thinking?
- How do the high creative and low creative Ao and Angami adolescents in Class IX differ in the vocational preferences and why?
- What are the measures to be taken by teachers, parents and administrators in guiding creative talent and vocational preferences of high school Naga boys and girls?

It may be justified here that the main reasons behind the selection of Class IX pupils than either Classes VII, VIII or X, were that the pupils of this class had already developed communicable vocabulary in English which was the medium of the tests. They were free from external examination (Matric final exam.). School authority was willing to give the time required for the tests in Class IX, and it formed a homogeneous group. Hence, Class IX was selected. In the same

way, reasons for the selection of Mehdi's tests as model for the construction of Nagaland tests of creative thinking (NTCT) than selecting any other tests, were because Mehdi's battery has less number of tests or activity content, less time taking, less expensive, easier in understanding by pupils, more suitability in uncontrolled situations and personal preference of the investigator for an Indian test suitable to tribal area.

The preference for 11 point scale to either 9 point or 5 point scales, was mainly due to the former's having more wide scope for detailed classification of vocations and better judgement of prestige for each vocation by experts. This scale gives more freedom to the experts in their thinking for judging the prestiges of vocations than either by 9 point or 5 point scales. Hence it was selected and used.

3.3.0. Definition of the Terms Used

- (i) **High Creative and Low Creative:** The composite creativity scores which are one standard deviation above the mean and below the mean were respectively used to mark out the high creative group and low creative group.
- (ii) **Creative Thinking:** Torrance (1966) conceives creative thinking as "a process of being sensitive to problems,

deficiencies, gaps in knowledge, missing elements, disharmonies and so on; identifying the difficulties, searching for solutions, making guesses or formulating hypotheses about the deficiencies, testing and retesting them and finally communicating the results."

- (iii) **Vocational Preference:** The first choice on the list of vocations/occupations available in Nagaland substantiating the reasons out of a list of possible reasons given, was treated as the vocational preference of a tribal pupil.
- (iv) **High School Tribal Pupils:** Aos and Angamis studying in Class IX in Mokokchung and Kohima districts respectively were treated as high school tribal pupils for the purpose of the study.
- (v) **More Educated, less Educated and Illiterate:** Parents of high school tribal pupils with matriculation and above were treated as more educated, Classes I to IX were treated as less educated, and those who did not have any formal schooling were treated as illiterates.

3.4.0. The Objectives

The principal objectives of the study were to:

- (i) to identify the high creative and low creative high school tribal pupils in Kohima and Mokokchung districts

- of Nagaland by developing a battery of verbal and non-verbal tests of creative thinking;
- (ii) find out the vocational preferences of high creative and low creative Ao and Angami pupils by developing and using a vocational prestige scale;
 - (iii) find out the reasons for the differences if any in their vocational preferences; and
 - (iv) suggest steps to be taken in the Naga tribal situation to identify and guide creative talent and to give educational, vocational and personal guidance.

3.5.0. The Hypotheses

For the statistical purpose to find out whether the apparent differences between the two sets of data were true differences or whether they merely result from sampling error, the technique of hypothesis was used.

In the present study, the Null Hypotheses were generated and tested. There are several reasons for taking such a decision. Some of them are: (i) Nagaland is a tribal area where systematic research is conspicuous by its absence. The whole state was a disturbed area for decades. Only recently, peace and development started bearing fruits, (ii) In the absence of relevant research findings, the investigator is not in a position to frame directed hypotheses for testing. In such a situation it is safer to frame Null Hypotheses

which can be either rejected or failed to reject, and (iii) Ao and Angamis are Nagas and there are several similarities and some differences. In such situation it is difficult to predict the outcome of the study. Hence, it was decided to use Null Hypotheses.

The hypotheses framed for testing the results of creative thinking were assembled under three sub-groups: (i) Between the two tribes, (ii) Within the tribes, and (iii) Within the variables (such as school, location and sex). In the same way hypotheses framed for testing the results of vocational preferences were also clustered under two sub-groups viz., (i) Between the two tribes, and (ii) Within the tribes. Altogether there were 36 hypotheses framed for testing.

3.5.1. Creative Thinking

(i) Between the two tribes

1. There is no significant difference between Ao and Angami pupils in their levels of creative thinking.
2. There is no significant difference between Ao and Angami high creative pupils in their levels of creative thinking.
3. There is no significant difference between Ao and Angami low creative pupils in their levels of creative thinking.
4. There is no significant difference between Ao and Angami high creative boys in their levels of creative thinking.

5. There is no significant difference between Ao and Angami low creative boys in their levels of creative thinking.
6. There is no significant difference between Ao and Angami high creative girls in their levels of creative thinking.
7. There is no significant difference between Ao and Angami low creative girls in their levels of creative thinking.
8. There is no significant difference between Ao and Angami rural high creative pupils in their levels of creative thinking.
9. There is no significant difference between Ao and Angami rural low creative pupils in their levels of creative thinking.
10. There is no significant difference between Ao and Angami urban high creative pupils in their levels of creative thinking.
11. There is no significant difference between Ao and Angami urban low creative pupils in their levels of creative thinking.

(ii) Within the Tribes

12. There is no significant difference between high creative pupils of More Educated (ME) and Less Educated (LE) parents of Ao tribe in their levels of creative thinking.
13. There is no significant difference between high creative pupils of More Educated (ME) and Less Educated (LE) parents of Angami Tribe in their levels of creative thinking.

14. There is no significant difference between low creative pupils of More Educated (ME) and Illiterate (ILL) parents of Ao tribe in their levels of creative thinking.
15. There is no significant difference between low creative pupils of More Educated (ME) and Illiterate (ILL) parents of Angami tribes in their levels of creative thinking.

(iii) Within the Variables

16. There is no significant difference between Aided (A) and Government (G) School tribal pupils in their levels of creative thinking.
17. There is no significant difference between Government (G) and Private (P) School tribal pupils in their levels of creative thinking.
18. There is no significant difference between Aided (A) and Private (P) School tribal pupils in their levels of creative thinking.
19. There is no significant difference between Rural and Urban tribal pupils in their levels of creative thinking.
20. There is no significant difference between tribal boys and girls in their levels of creative thinking.

3.5.2. Vocational Preferences

(i) Between the two Tribes

21. No significant difference exists in the means of vocational prestige scores between Ao and Angami tribes (pupils).

22. No significant difference exists in the means of vocational prestige scores between high creative and low creative tribal pupils of the two districts.
23. No significant difference exists in the means of vocational prestige scores between Ao and Angami high creative pupils.
24. No significant difference exists in the means of vocational prestige scores between Ao and Angami low creative pupils.
25. No significant difference exists in the means of vocational prestige scores between Ao and Angami high creative boys.
26. No significant difference exists in the means of vocational prestige scores between Ao and Angami low creative boys.
27. No significant difference exists in the means of vocational prestige scores between Ao and Angami high creative girls.
28. No significant difference exists in the means of vocational Ao and Angami low creative girls.

(ii) Within the Tribes

29. No significant difference exists in the means of vocational prestige scores between rural and urban high creative boys of Ao tribe.

30. No significant difference exists in the means of vocational prestige scores between rural and urban low creative boys of the Ao tribe.
31. No significant difference exists in the means of vocational prestige scores between rural and urban high creative girls of Ao tribe.
32. No significant difference exists in the means of vocational prestige scores between rural and urban low creative girls of Ao tribe.
33. No significant difference exists in the means of vocational prestige scores between rural and urban high creative boys of Angami tribe.
34. No significant difference exists in the means of vocational prestige scores between rural and urban low creative boys of Angami tribe.
35. No significant difference exists in the means of vocational prestige scores between rural and urban high creative girls of Angami tribe.
36. No significant difference exists in the means of vocational prestige scores between rural and urban low creative girls of Angami tribe.

3.6.0. The Sample

The initial population of the study consisted of 3390 Class IX pupils. From this, the initial sample of 1000 pupils

belonging to Ao and Angami tribes was drawn and, again from the initial sample, the final sample of 320 high creative and low pupils was drawn. Experts, mainly from the two tribes who have the vocational knowhow in the state formed another population for the construction of a vocational prestige scale used in the study. In other words, there were three samples drawn from the populations. The first and second were for tool construction and the third was for final administration of the tool for collecting data.

The first sample for construction of tests of creative thinking consisted of 50 tribal pupils of Class IX from two high schools - one from Mokokchung and another from Kohima districts respectively.

The second sample for the construction of vocational prestige scale for fixing the prestige value of each of the vocation consisted of 50 experts. The purposive sampling technique was used in the selection of the experts to serve the purpose of judging the prestige of vocations available in Nagaland.

The final sample for the study consisted of 320 pupils - 160 high creative, and 160 low creative identified from the initial sample (1000 pupils) who belonged to 26 high schools of the two districts. Of the total 320 pupils, 200

belonged to Ao tribe and 120 belonged to Angami tribe. The selection was done in such a way that each sample represented the corresponding tribes high and low creative pupils. For the selection of schools and pupils in the two districts due weightage was given to rural and urban areas, boys and girls, and government and private management to make the sample truly representative of the population. The pupils vocational preferences were studied with respect to their creative thinking, sex, parents' educational background and district. The description of the population along with the percentage of the sample is shown in Table 3.1.

Table - 3.1: Description of the Sample with Population

CATEGORY	Aos			Angamis			Grand Total		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Initial Population	1188	951	2139	747	510	1257	1935	1461	3396
	35%	28%	63%	22%	15%	37%	57%	43%	100%
Initial Sample	350	280	630	220	150	370	570	430	1000
	35%	28%	63%	22%	15%	37%	57%	43%	100%
Final Sample	88	112	200	72	48	120	160	160	320
	28%	35%	63%	22%	15%	37%	50%	50%	100%

As has been mentioned earlier (vide caption 1.1.) that the size of actual population as well as number of literates among the Aos, were much larger than the Angamis. Hence it was felt justifiable to maintain a proportion between the two.

Thus a proportion of 63:37 in the population as well as in the sample was maintained (from the percentages). Detailed description of the sample is given in Table 3.2.

The school-wise description of the sample on the basis of location, types, sex and districts; is given in the Table 3.3.

3.6.1. Justification of Sample Selection

Selection of final sample for study has been done from the population of Class IX pupils from both the districts. Since the study was a comparative one which requires two groups. The population was again divided into two - class IX Ao pupils of Mokokchung district and class IX Angami pupils of Kohima district. Accordingly, two separate samples were drawn representing each tribe. The sizes of the samples were determined according to the size of the actual population and male-female ratio of the two tribes which were based on the 1981 census report (vide caption 1.1).

Out of the total number of 2,636 school going class IX pupils in Mokokchung district during the academic session 1988-89, 2098 were Aos. Out of the 2098 pupils the tests were administered to 1028 pupils from 11 high schools. Five of them located in the rural areas and six in the urban areas (4 Govt., 6 Pvt. and 1 Aided). The administration of the

Table - 3.2: Break-up in the sample with percentage (N = 320)

Category		Boys	Girls	Total	HC	LC	R/B HC	R/G HC	U/B HC	U/G HC	R/B LC	R/G LC	U/B LC	U/G LC
Ao	N	88	112	200	100	100	21	26	23	30	9	38	35	18
	%	44	56	100	50	50	10.5	13	11.5	15	4.5	19	17.5	9
Angami	N	72	48	120	60	60	16	13	21	10	25	20	10	5
	%	60	40	100	50	50	13.33	10.83	17.5	8.33	20.83	16.66	8.33	4.16

HC = High Creative, LC = Low Creative

R = Rural B = Boys

U = Urban G = Girls

Table - 3.3.: Schoolwise Description of the Sample (N=1000)

Schools	R/U	Type	Boys	Girls	Total
Mokokchung					
N.H.S.	U	Aided	48	22	70
G.H.S.M.	R	Govt.	70	72	142
G.H.S.D.	U	Govt.	32	35	67
G.H.S.U.	R	Govt.	28	17	45
G.H.S.O.	R	Govt.	26	25	51
Q.M.S.	U	Pvt.	30	20	50
E.K.G.S.	U	Pvt.	25	21	46
M.E.S.	U	Pvt.	25	20	45
E.D.S.	U	Pvt.	23	19	42
B.I.	R	Pvt.	33	23	56
B.E.S.	R	Pvt.	10	6	16
Total			350	280	630
Kohima					
F.C.A.	R	Aided	24	18	42
N.H.S.	U	Aided	7	4	11
C.M.E.S.	R	Aided	13	8	21
G.H.S.K.	R	Govt.	19	12	31
G.H.S.T.	R	Govt.	14	8	22
G.H.S.S.	U	Govt.	23	12	35
G.H.S.J.	R	Govt.	7	6	28
G.H.S.V.	R	Govt.	15	13	28
M.H.B.E.S.	U	Pvt.	15	7	22
C.E.S.	U	Pvt.	11	5	16
L.F.S.	U	Pvt.	-	11	11
B.E.S.	U	Pvt.	18	7	25
V.H.S.	U	Pvt.	16	9	25
S.T.P.H.S.	R	Pvt.	22	21	43
K.E.S.	U	Pvt.	16	9	25
Total			220	150	370
Grand Total			570	430	1000
No. 26	R = 12 U = 14	Aided = 4 Pvt. = 13	Govt. = 9		

tests was done following the procedures i.e. giving instructions, observing time bound period etc. of each test item. In this way, avoided any possible variations that may come up in the course of administration of the other schools having different settings.

A mention may be made here that the school authorities, in most of the cases, willingly gave the required time for the tests administration as the investigator usually sought their convenient time 4 to 5 days ahead. However, dividing of a single class into two - required groups (Aos or Angamis) and non-required group (non-Aos or Angamis) was found difficult as there was not enough space to adjust the group which was not engaged. Besides, school authorities wanted all the students being exposed to the new experience. Hence, the tests were administered to both 'required' and 'non-required' groups by limiting the number. Afterwards, the answer sheets of the 'non-required group' were sorted out.

Number of pupils in one class was limited to 45 to 50. In this way, possible disciplinary problems were avoided. Besides, a teacher each was sent by the Headmasters concerned on request to assist the investigator during the test administration. The investigator was also assisted by an assistant who went with him for the purpose. Besides, the investigator also took with him some extra pen, pencils etc. to meet for any emergency needs of pupils while responding to the tests.

After the evaluation was finished 630 pupils out of the 1028 administered, who have maintained an equal performance in both verbal and non-verbal were selected. Then following the criteria of determining high creative and low creative (i.e. 1σ below and 1σ above mean), the middle 68% of the cases were threshed out leaving behind 32% (approx.) or 16% of the cases on either side of the mean. About 100 cases each were found lying above and below $\pm 1\sigma$, were considered as high creative and low creative groups respectively. The break-up in the sample (for Aos) is given in Table 3.2.

Likewise, out of the 3,284 pupils in Class IX, during the session 1988-89 in Kohima district, 1300 pupils were found to be Angamis. Out of the total 1300, the tests were administered to 686 pupils who belonged to 15 high schools - 7 located in rural area and 8 in the urban area (5 Govt., 7 Pvt. and 3 Aided). The selection of schools was done by giving due weightage to rural and urban areas, boys and girls and government and private managements.

After the administration and evaluation, 370 pupils who have more or less equal performance on both verbal and non-verbal tests, were selected. Then following the criteria for determining high creative and low creative, the middle 68%, average performers were avoided leaving behind only

the top and bottom groups. Thus, 32% of the cases were left i.e. 16% of the cases on each side of the mean line. About 60 cases each were found lying above and below $\pm 1\sigma$ were considered as high creative and low creative groups respectively. A total of 120 cases were selected as high creative and low creative to represent the Angami tribe of Kohima district (vide Table 3.2.).

On the basis of the break-up, the calculations i.e. mean, S.Ds and significance of difference between means (t-test) for the scores of creative thinking and vocational performances were done (vide Chap. IV). Thus, from the total cases of 1000 (population), the sample for the study (320 cases) was drawn (200 Aos and 120 Angamis). In this way, the sample selection of the study was finalised.

3.7.0. Design of the Study

As the study was intended to find out vocational preferences of pupils among the Aos and Angamis in affiliation to their creative thinking, sex, educational background of pupils' parents and district, a 2 X 2 X 3 X 2 factorial design was used. From the methodological point of view the study is a survey of descriptive type of research. The major variable along with corresponding sub-variables involved in the study are given in Table 3.4.

Table - 3.4: List of variables and tools used to derive them

Sl. No.	Name of variables	Tool used
1.	Creative Thinking	
	(a) Verbal ... F	NTCT
	" ... X	NTCT
	" ... O	NTCT
	" ... C	NTCT
	(b) Non-Verbal ... E	NTCT
	" ... O	NTCT
	" ... C	NTCT
	Total creative thinking (TC)	NTCT
2.	Vocational preferences	Vocational Prestige scale
3.	Name, Sex, School, Class, Tribe, district, parents' education etc.	Information proforma
4.	Suggestions	Interviews

3.8.0. Tools Used

The main tools used in the study were:

1. A battery of verbal and non-verbal tests of creative thinking constructed by the investigator.
2. "A Vocational Prestige Scale" for vocational preferences of high school pupils and judging of the prestiges of each of the vocations in the list.

3. "A Personal Information Proforma" for collecting information regarding name of pupil, school, sex, class, tribe, district, parents' education etc.
4. "Unstructured Interviews" - with categories of people for various purposes connected with the study.

3.8.1. Justification of the Tools

The construction and selection of the tools used in the present study were based on the reasons given for each tool.

1. The battery of tests of creative thinking was meant to identify creative pupils at high school stage of education. The types of activities included in the tests have been chosen in such a way that they would be most easily and economically administered over a wide range of sample, suitable to local conditions and understanding level of the pupils. The basic requirements of the tests were only paper, pencil or pen, which further simplified their administration. Hence the investigator constructed the battery keeping Mehdi's tests of creative thinking as model for use in the present study.

2. **Vocational Prestige Scale** - Being a tribal state, Nagaland has a social set up which is different from others. In terms of occupational structure too, the state is, to

a great extent, different from other states although it still did not deviate completely from the main stream of Indian society. In view of the difference in the attitude of people towards the prestige or status of certain vocations (e.g. Missionary, Gaonbura, Bobashi etc.) in this society, need was felt to construct a separate "vocational prestige scale" to judge the prestiges of vocations in the state which were to be supplied later to the pupils for indicating their vocational preferences. Hence, the scale was constructed and used as one of the tools in the study.

3. For understanding the educational background of pupils' parents which might have an important bearing on the creative thinking and vocational preferences of their children, it was also found necessary to prepare for a 'Personal Information Proforma' to be filled up by the pupils during the tests administration. This would not only supply information about the parents but also for the pupils like name, school, sex, tribe, district etc. which would be useful in the study. Hence, it was prepared and used in the study.

4. As the study also required to meet categories of people for various purposes like finding out suitable materials for the construction of verbal and non-verbal tests of creative thinking, collection of information for the vocational prestige scale, seeking suggestions for upgrading creative

thinking, vocational guidance service and further research in the relevant areas, need was felt to employ 'Interview' as one of the tools to be used for the present study. Hence, it was also used.

3.8.2. Tool Construction

The tool construction started with the collection of a number of items from different sources for the different activities of verbal and non-verbal tests of creative thinking. Before proceeding further, a mention may be made here that the present investigator was a postgraduate student at Kohima and a resident teacher in the culture nearly a decade. His long experience and close association with the Nagas have helped him to select test items suitable to Naga culture and in meeting and consulting people for the study.

The investigator met and consulted with many resource persons mainly from the two tribes and went through many books and records on Naga culture. Then a comprehensive list of items for each of the different activities was prepared. The list was then shown to local educated by way of seeking their views and suggestions before the items were actually put to different stages of trials.

3.8.2.1. Creative Thinking Tests

Baqer Mehdi's tests of creative thinking (BMTCT) which is based on Torrance tests of creative thinking (TTCT) were

kept as model for the construction of Nagaland tests of creative thinking (NTCT), used in the study specially for structure and validation purposes. Details about the items with reasons for rejection and retention are given here.

A. Verbal Tests of Creative Thinking

For verbal creative thinking tests, out of the items gathered, the following items for each of the respective activities were retained after the screening for further trials.

1. Consequences Test

The following are the items which were retained after the screening for further trials for the construction of consequences test.

Table - 3.5: Items collected for trial for consequences test

Sl.No.	Statement: What would happen if
(i)	Human beings start flying like birds?
(ii)	All the houses start flying?
(iii)	The sun never sets?
(iv)	Boys and girls never fall in love?
(v)	All sources of electricity stop functioning beyond repair?
(vi)	The sun never rises?
(vii)	You win two lakhs of rupees in Nagaland lottery?
(viii)	A severe earthquake occurs in Nagaland?
(ix)	God appears in the churches of Nagaland?
(x)	You become the Chief Minister of Nagaland?
(xi)	The people of Nagaland never die?

Reasons

1. The first and second (i & ii) items were almost similar to Mehdi's. By putting such similar items the investigator wanted partly to introduce Mehdi's tests though they were not considered quite suitable to Nagaland situation, but just to see students first reaction to such type of imaginative statements.
2. The items (iii - vi) can be for all cultures other than the Naga culture. By selecting such items the investigator wanted to test the creative imagination of the pupils about the things which were not necessarily of their culture but universal.
3. The items (vii - xi) were entirely of Naga culture. The items, when any one of them occurred in Nagaland or to any Naga, the impact is immediately felt in their day-to-day life. In other words, these were some of the things which they like or bother about in their lives. These items were likely to provoke more of their thinking or imagination as they sound interesting, fancyful, fearsome and immediate to them. Hence they were selected for further trials.

2. Unusual Uses Test

The following are some of the objects which were retained after the first screening for different stages of trials.

Table - 3.6: Items collected for trial for unusual uses test

Sl.No.	Items Collected
(i)	Newspaper
(ii)	Stone
(iii)	Rice
(iv)	Naga-spear
(v)	Feather
(vi)	Naga-basket
(vii)	Wine (Modhu)
(viii)	Naga-shawl
(ix)	Bamboo

Reasons

1. It was intended to test the general creative awareness of the pupils with the help of the items (1-3) which were commonly found in most of the cultures and their way of using was also more or less same as in Naga culture.
2. The remaining six items (6) may be separated as entirely of Naga culture. In fact, these were some of the things Nagas have been using since ages. When pupils were asked to write something about them, they might be able to do it easily and conveniently. Besides, they may be able to think in more different ways of using them in the light of their long acquaintance with them. Hence, they were selected for trials.

3. New Relationships Test

Given below are the 9 pairs of objects selected from among the items collected for trials.

Table - 3.7: Items collected for trial for New Relationships Test

Sl.No.	Items collected
(i)	Man and animal
(ii)	Air and water
(iii)	Milk and honey
(iv)	Wool and cotton
(v)	Butterfly and bird
(vi)	Wood and clay
(vii)	Pig and cow
(viii)	Gun and dao
(ix)	Naga-house and school

Reasons

The first six pairs were picked up to test the general creative awareness through the things commonly found in other cultures as well as Naga culture. The last three pairs were chosen from Naga culture mainly to test the creative thinking of the Naga pupils. Hence, these nine pairs of objects were selected for trials.

4. Product Improvement Test

The following four items (objects) were selected for trials for this test.

(i) Doll, (ii) Table, (iii) House, and (iv) Toy vehicle.

Reasons

These objects were some of the most commonly used things by children as their play-mates nowadays in Nagaland. Quite a good number of play-mates were found but the most common ones were these four. Since the pupils have already played with them in their early age, asking them to improve an ordinary play-mate of this sort, may not be that difficult, rather interesting and thought provoking for them. With this assumption that through them creative thinking of the pupils can be tested, the investigator has picked up these four objects for a series of trials.

B. Non-Verbal Tests of Creative Thinking

For non-verbal tests of creative thinking, the items or figures were conceived from various cultural objects used by the Nagas since ages. For example, the 'Cross' (figure) was conceived from the faith (Christianity) the Nagas (90%) are professing today.

Since the time of Christianity's advent in Nagaland through the American Baptist Missionaries, conversion to this new religion has been taking place upto today. People find the new religion believable and true as it gives the solace, and comes out as the means to bring unity among the

Nagas whose lives were constantly threatened with uncertainty in those turmoil days of head-hunting. The new faith has weilded the unity among the Nagas so well that even today, the Nagas stand in strong unity. Their life styles, attitudes, ways of behaving to others and their unique sense of hospitality have been enhanced since the embracement of the new faith. The 'Cross' which is used in the Activity - I (Non-verbal) was derived from the cross used in this new faith. It is used as a symbolic expression of the religion which they considered as an inseparable part of their culture. Hence, when the Cross which is so familiar, used as a stimulus to the students and asked them to think about its various possible ways of using in creative sense (keeping aside its religions significance a while), may not be very difficult for them. Rather they may find it easier, interesting and thought provoking. Of course, it was proved true later. Hence, this item was selected.

In the same way, other figures selected for the three Non-Verbal activities were also conveyed from the commonly known and used cultural objects of the Nagas like - spear, dao, mountains, trees, leaves, birds, traditional vessels, houses, bows, arrows, eggs, horns, wooden-husker, fruits, stones, feathers, implements etc. Before the figures were taken for trials, they were shown to many educated locals

for their comments and suggestions for screening and improvement of the figures.

Then the selected items (both verbal and non-verbal) were tried with the following groups of students observing strictly the time given for each item or activity in the test-manual.

1. With 15 Ao and Angami pupils. This small group of pupils was drawn from 4 high schools and administered the items within 6 days with the assumption that their responses may give an insight to predict about the possible reaction of the pupils in the actual situation.
2. With Class IX pupils (ten of them). The items were tested with this group of pupils who belonged to the same class and same tribes to which the study was actually confined. Through this group the investigator wanted to confirm about the actual demand, performance and problems of students that might come up in the real classroom situation.
3. With 110 Ao and Angami Class IX pupils in actual classroom situation. The items were tested with this group of pupils who belonged to three high schools - one from Mokokchung (Queen Mary's School) and two from Kohima (Christian Mission English School and Government High School, Chumukidima) Districts. The main reason behind the selection and

administration of the test items in the actual classroom situation with the real set of pupils, was that before the 'try-out' one of the 'pre-try-outs' could be done with the real group of pupils in actual classroom situation, would help the investigator to acquaint with the actual reactions of the pupils, actual classroom situation and other requirements in the tests administration. This would also help the investigator in better refining the items, improving scoring techniques and better preparation for try out.

Thus, at the end of the 3 stages of pre-try-out, only three items for Activity - I; three items for Activity - II; three items for Activity - III and one item for Activity - IV for verbal were retained for try-out. In the same way, items for non-verbal activities were also finalised - two figures for picture construction, ten-line drawings for picture completion, and seven bows and seven horns for bows and horns. Out of the dropped items, four items for verbal and three figures for non-verbal, were selected and used as examples in the 'Instruction Booklets' for both the halves of the tests. Items retained and dropped during the pre-try out stages for verbal (No. only for dropped items) are shown in Table 3.8.

Table - 3.8: Items dropped and retained in tool construction
(verbal tests of creative thinking)

Sl. No.	Activities	Items retained	Items dropped
1.	I Consequences	(viii) What would happen if a severe earthquake occurs in Nagaland? (v) What would happen if all sources of elec- tricity stop func- tioning beyond repair? (xi) What would happen if the people of Nagaland never die?	No. (i) No. (ii) No. (iii) No. (iv) No. (vi) No. (vii) No. (ix) No. (x)
2.	II Unusual uses	(iv) Naga-spear (ix) Bamboo (viii) Naga-shawl	No. (i) No. (ii) No. (iii) No. (v) No. (vi) No. (vii)
3.	III New rela- tionships	(iv) Wool and cotton (viii) Gun and dao (ix) Naga-house and school	No. (i) No. (ii) No. (iii) No. (v) No. (vi) No. (vii)
4.	IV Product Improvement	(i) Doll	No. (ii) No. (iii) No. (iv)

Preparation of the "Instruction Booklets" was one with the help of some persons who have good language background in English. Two separate booklets were prepared - one for verbal tests and another for non-verbal tests.

Try-Out




After having prepared the test materials together with the instruction booklets, NTCT were taken along with Mehdi's tests to two high schools - one at Mokokchung (Edith Douglas School) and another at Kohima (Faith Christian Academy) for try-out where they were administered to 44 Ao and 45 Angami pupils respectively. Before the administration was started, instructions were read out to the pupils, doubts were clarified and purpose of the tests was told.

First the NTCT were administered then followed by Mehdi's tests. The tests were conducted in normal situation maintaining test atmosphere and observing the time-bound period for each item as well as activity. The investigator also took a 'doll' and a 'house' (toy) along with extra pens and pencils, as requirements of the tests administration.

Out of the 89 pupils, 50 of them were selected for final sample of the tests construction. The proportion were maintained by selecting 25 pupils from each of the two tribes (Aos - 13 boys and 12 girls, and Angamis - 13 boys and 12 girls). Scoring and analysis were done strictly following

the 'procedures' given in the tests-manual. As mentioned earlier, that Mehdi's tests were administered to the same set of pupils along with the Nagaland tests, was for the purpose of validity of the Nagaland tests of creative thinking. Means, S.D.'s and correlations (including internal consistency) were found.

Table - 3.9: Time allowed for each test and item

NTCT	Items	Time allowed
A. <u>Verbal</u>	What would happen if	
1. Consequences	i) A severe earthquake occurs in Nagaland?	5 mts
	ii) All sources of electricity stop functioning beyond repair?	5 mts
	iii) The people of Nagaland never die?	5 mts
2. Unusual uses	i) Bamboo	4 mts
	ii) Naga-spear	4 mts
	iii) Naga-shawl	4 mts
3. New Relationships	i) Gun and Dao	5 mts
	ii) Naga-house and school	5 mts
	iii) Cotton and wool	5 mts
4. Product improvement	i) Doll (plastic)	6 mts
	Total	48 mts
B. <u>Non-verbal</u>		
1. Picture construction		10 mts
2. Picture completion		15 mts
3. Bows and Horns		10 mts
	Total	35 mts

The calculated results showed that correlations and internal consistency between various dimensions of Nagaland tests of creative thinking (NTCT) and Baqer Mehdi's tests of creative thinking (BMTCT) were found significant at .01 level (vide Table 3.10 (A & B)).

Test-retest reliability of the NTCT was also found significant at .01 level (vide Table 3.12).

3.8.2.2. Validity

The validity of the Nagaland tests of creative thinking was found. For the purpose, Baqer Mehdi's tests of creative thinking was administered along with the NTCT to the first sample of 50 pupils from two high schools - one from Mokokchung and another from Kohima, to see whether the NTCT measure the same ability as that of the known tests. The obtained scores of the two tests were analysed and correlation was found. The result showed that the validity was significant at .01 level (vide Table 3.10(A)).

Further, internal consistency among different dimensions of NTCT was also found. The results revealed that there was high internal consistency among the dimensions (vide Table 3.10(B)).

Table - 3.10(A): Correlation between BMTCT and NTCT (Verbal and Non-verbal)

Verbal		Non-verbal	
Dimensions	Correlation	Dimensions	Correlation
F	0.90 **	E	0.70 **
X	0.82 **	O	0.70 **
O	0.89 **	C	0.88 **
C	0.77 **		

** Significant at .01 level.

Table - 3.10(B): Internal consistency for different dimensions of verbal and non-verbal NTCT

Verbal		Non-verbal	
Dimensions	Correlation	Dimensions	Correlation
C & F	0.74 **	C & E	0.94 **
C & X	0.78 **	C & O	0.65 **
C & O	0.61 **	C (vl) & C (nvl)	0.90 **

** Significant at .01 level

vl = verbal

nvl = non-verbal

Reliability

Reliability of the NTCT was found. Test-retest method was used to find out the reliability coefficient of the tests. For the purpose, the first test administration was done with 50 tribal pupils of class IX in Nibukhu high school, Mokok-chung district. After an interval of about two weeks, the

retest was done with the same set of pupils. It may be mentioned that though only 50 pupils were selected for the final sample number of pupils actually administered was ninety seven (97). Out of this, the 50 pupils were selected. The two sets of scores obtained were examined and, mean, standard deviation and reliability coefficient were found. The results showed the existence of significant correlation (.01 level) between the first and second tests administration (vide Table 3.11).

Table - 3.11: Correlations between Test - Retest Reliability for NTCT (verbal and non-verbal)

Verbal		Non-verbal	
Dimensions	Correlations	Dimensions	Correlations
F	0.92 **	E	0.93 **
X	0.89 **	O	0.94 **
O	0.85 **	C	0.97 **
C	0.90 **		

Norms

Norms, as one of the important factors in the standardization of a newly constructed test, gives information about the normalised position of the testee in relation to that of others of the group which he represents. Thus, for the purpose of standardization of the NTCT, the technique of norm was used. First, using the standard score norms, the raw scores were transformed into standard scores or Z - scores

(T - scores). Then the normalised position for each of the 10% pupils was found from the population (N=1000) by using the percentile norms. In the present study norms for only three groups of scores - verbal composite, non-verbal composite and total creativity were found. They are given in Table 3.12.

Table - 3.12: Percentile Norms of 1000 pupils for Verbal, Non-Verbal and Total Creativity

Percentiles	Verbal	Non-verbal	Total Creativity
P100	259.50	205.50	400.50
P90	190.31	127.50	312.66
P80	170.74	115.50	279.06
P70	159.49	109.52	261.64
P60	152.35	103.54	250.37
P50	145.85	98.60	243.69
P40	140.70	94.72	237.07
P30	135.55	90.84	230.34
P20	129.07	86.97	223.64
P10	121.70	79.72	213.15

2.8.2.3. Vocational Prestige Scale

According to the need of the study (vide Caption 3.8.1) a 'Vocational Prestige Scale' was constructed.

In order to gather sufficient information regarding vocations, the investigator visited different departments like planning and economics, statistics, employment exchange, Nagaland Public Service Commission (NPSC) etc. in the state

along with going through the National Classification of Occupation (NCO) published by the Directorate General of Employment and Training (DGET). After this a long list of vocations mainly available in Nagaland like Missionary, Pastor, Gaonbura, Agriculture, Weaving, Blacksmithing, Dobashi, Local Physician etc. was prepared. As a trial 'the list of vocations' was shown to 15 educated locals for their comments and suggestions for its further refining. The list (vocations) was then modified on the basis of their suggestions and finally, was fixed with 208 vocations.

Then in order to determine the social prestiges of each of the vocations, the ratings of a purposive sample of 50 experts on an 11 point scale (fixed on the vocational prestige scale), were first obtained.

When the vocational prestige scale was sent to the experts a 'sheet' each was attached in which directions were given to the experts concerning how to give rating for each vocation on the scale (vide Appendix C). They were also asked to add any more vocations, if they thought (the vocations) were not yet included in the list, or to avoid rating of any vocations if they were certain that the vocations were not available at the moment in the state. They were also directed that they would judge the prestige or general standing of the vocations strictly within Naga culture. Along with a request (at the time of distribution) for early return,

the investigator also left behind some self-addressed envelopes with certain experts for their convenience in returning the scale.

Then the scores for each vocation were arranged properly and the prestige value of each of them was calculated by employing Median Ranking techniques. The formula used for finding the Median of series of ungrouped scores was that one given by Guilford (1956) and Furguson (1959). This method of computing Median deviates from the usual method although the main structure remains the same. The method is explained with the help of the example given below.

Certain problems arise in calculating the median when some values of the variables occur more than one, as for instance with the observations:

7, 7, 7, 8, 8, 8, 9, 9, 10, 10.

For these 10 observations, it was required to locate a point such that 5 observations fell above it and 5 below. In group data each score or measurement was assumed to occupy a range of one unit. Here the three 8s might be assumed to occupy the interval of 7.5 to 8.5. The median was obtained by interpolation. In this instance, it must interpolate two-thirds of the way into the interval to obtain a point above or below which half the observations fall. The median was then taken as:

$$\text{Median} = 7.5 + .67$$

$$= 8.17$$

or

$$\text{Median} = 8.5 - .33$$

$$= 8.17$$

The same procedure was followed in computing the Median ranking for each of the vocations in the list. However, to some extent some minor points were ignored in order to make the scores into three forms, for example, 5.00 or 5.50 or 6.00. In the case of first, the rank of that particular vocation is just around 5 (little above/), in the same way, the cases of other two also. In this way, it gives an attractive sight of the scores when arranged in large group and convenient in calculation in the computer though accuracy seems to be a little less. The social prestiges (values) computed for all the 208 vocations are given in hierarchical order in Table 3.13.

Table - 3.13: Hierarchical Order of Vocations based on Prestige Values (N = 208)

Sl. No.	Vocations H = 1-17 Av.=18-135 L = 136-208	Prestige Values	Sl. No.	Vocations	Prestige Values
1.	President	1.50	5.	Governor	3.20
2.	Prime Minister	1.50	6.	Medical Doctor	3.40
3.	Vice Chancellor	2.20	7.	Professor	3.50
4.	Ambassador	2.60	8.	Minister	3.50

Table - 3.13 (Contd.)

Sl. No.	Vocations H = 1-17 Av. = 18-135 L = 136-208	Prestige Values	Sl. No.	Vocations	Prestige Values
9.	Surgeon	3.50	34.	Employment Officer	5.40
10.	Scientist	3.50	35.	Research Officer	5.40
11.	Secretary (Adn)	3.50	36.	Block Development Officer (BDO)	5.40
12.	Missionary	3.50	37.	Author	5.50
13.	Deputy Commissioner	3.50	38.	Soil Conservation	5.50
14.	Member of Parliament	3.50	39.	Geologist	5.50
15.	Additional Director	3.50	40.	Member of Legislative Assembly (MLA)	5.50
16.	Principal	3.70	41.	Farm Manager	5.50
17.	Director	3.70	42.	Pharmacist	5.50
18.	Lecturer	4.20	43.	Superintendent of Police (SP)	5.50
19.	Civil Engineer	4.20	44.	Bank Manager	5.50
20.	Sub-Divisional Officer	4.30	45.	Extra Assistant Commissioner (EAC)	5.50
21.	Veterinary Officer	4.30	46.	Cashier	5.50
22.	Controller (Press/Exam.)	4.40	47.	Brigadier	5.60
23.	Chairman, Nagaland Public Service Commission (NPSC)	4.50	48.	Evangelist	5.60
24.	Inspector General of Police (IGP)	4.50	49.	Secretary (any Organisation)	5.60
25.	Judge	4.50	50.	Architect	5.80
26.	Reader	4.50	51.	Vocational Guidance and Counselling Officer	5.80
27.	Dentist	4.50	52.	Diary Farmer	5.80
28.	Contractor	4.60	53.	Own Operator of a Press	5.80
29.	Commandant	4.70	54.	Plan Pathologist	6.20
30.	Airline Pilot	5.10	55.	X-ray Technician	6.20
31.	Homoeopath	5.30	56.	Postmaster	6.20
32.	Officer on Special Duty (OSD)	5.30	57.	Journalist	6.20
33.	Deacon	5.40			

Table - 3.13 (Contd.)

Sl. No.	Vocations H = 1-17 Av. = 18-135 L = 136-208	Prestige Values	Sl. No.	Vocations	Prestige Values
58.	Life Insurance Officer	6.20	83.	Singer	6.50
59.	Insurance Agent	6.20	84.	Coach	6.50
60.	Umpire	6.30	85.	Company Agent	6.50
61.	Coordinator	6.30	86.	Actor/Actress	6.50
62.	Project Officer	6.30	87.	Farm owner	6.50
63.	Agriculture Inspector	6.40	88.	Instrumental Musician	6.50
64.	Excise Officer	6.40	89.	Father (Catholic)	6.50
65.	Sectional Officer	6.40	90.	Chaplain	6.50
66.	Draftsman	6.40	91.	Choir-leader	6.50
67.	Gaonbura (GB)	6.40	92.	Transport Superintendent	6.60
68.	Dealer (in any)	6.40	93.	Secondary School Teacher	6.70
69.	Pastor	6.40	94.	Fitter	6.70
70.	High School Headmaster	6.50	95.	Income Tax Officer	6.70
71.	Agriculture Officer	6.50	96.	Nun	6.70
72.	Local Physician	6.50	97.	Trained Machinist	6.80
73.	Lawyer	6.50	98.	Village Council Leader	6.80
74.	Railway Engineer	6.50	99.	Registrar	6.80
75.	Police Inspector	6.50	100.	News-Reader	6.80
76.	Army Captain	6.50	101.	Voluntary Public Workers	6.80
77.	Deputy Superintendent of Police (DSP)	6.50	102.	Reporter	6.80
78.	Town Committee Chairman	6.50	103.	Restaurateur	6.80
79.	Public Relations Officer	6.50	104.	Liaison Officer	6.90
80.	Chief Town Planner	6.50	105.	Librarian	7.20
81.	Air Hostess	6.50	106.	Motor Mechanic	7.30
82.	Station Master	6.50	107.	Nurse	7.40

Table - 3.13 (Contd.)

Sl. No.	Vocations H = 1-17 Av. = 18-135 L = 136-208	Prestige Values	Sl. No.	Vocations	Prestige Values
108.	Warden	7.40	134.	Auto Driver	7.80
109.	Martial Art Master	7.40	135.	Cloth presser	7.90
110.	Jailor	7.40	136.	Commercial artist	8.20
111.	Poultry farmer	7.40	137.	Truck driver	8.20
112.	Intelligent Officer	7.50	138.	Laboratory Assis- tant	8.20
113.	Accountant	7.50	139.	Salesman	8.30
114.	Personal Secretary	7.50	140.	Beautician	8.40
115.	Upper Division Clerk	7.50	141.	Railway driver (Train)	8.40
116.	Supervisor	7.50	142.	Body guard	8.40
117.	Treasurer	7.50	143.	Curator	8.40
118.	Tourist Guide	7.50	144.	Forest Ranger	8.40
119.	Designer	7.50	145.	Model	8.50
120.	Brother/Sister (Catholic)	7.50	146.	Grocery Shopkeeper	8.50
121.	Hotelier	7.50	147.	Photographer	8.50
122.	Craftsman	7.50	148.	Electrician	8.50
123.	Professional player	7.50	149.	Caretaker	8.50
124.	Mondal	7.60	150.	Soldier	8.50
125.	Tax Collector	7.60	151.	Matron	8.50
126.	Minor	7.60	152.	Primary School Teacher	8.60
127.	Compounder	7.60	153.	Deputy Inspector of School (DIS)	8.70
128.	Physical Education Instructor	7.60	154.	Poet	
129.	KG School Headmistress	7.60	155.	Train Ticket Examiner	8.70
130.	Receptionist	7.70	156.	Farmer	8.80
131.	Amateur	7.70	157.	Typist	8.80
132.	Lower Division Clerk	7.80	158.	Dobashi	8.90
133.	Horticulturist	7.80	159.	Magician	8.90

Table - 3.13 (Contd.)

Sl. No.	Vocations H = 1-17 Av. = 18-135 L = 136-208	Prestige Values	Sl. No.	Vocations	Prestige Values
160.	Telephone Operator	9.20	189.	Constable	9.80
161.	Bus Driver	9.20	190.	Ticket seller	9.90
162.	Waiter	9.20	191.	Railway Signal- man	10.30
163.	Weaver	9.20	192.	Sweeper	10.30
164.	Machine Operator	9.30	193.	Ticket Collector	10.40
165.	News hawker	9.30	194.	Palmist	10.40
166.	Tailor	9.30	195.	Gardener	10.50
167.	Pre-primary Teacher	9.40	196.	Tonga-Driver	10.50
168.	Maid	9.40	197.	Garbage Collector	10.50
169.	Fish Farmer	9.40	198.	Railway guard	10.50
170.	Vaccinator	9.50	199.	Shoe shiner	10.50
171.	Mason	9.50	200.	Baker	10.50
172.	Repairer	9.50	201.	Thellapuller	10.50
173.	Traffic Police	9.50	202.	Snake-charmer	10.50
174.	Taxi driver	9.50	203.	Rickshaw Puller	10.50
175.	Bus conductor	9.50	204.	Door to door seller	10.60
176.	Plumber	9.50	205.	Barber	10.60
177.	Carpenter	9.50	206.	Labourer	10.60
178.	Smith	9.50	207.	Restaurant cook	10.80
179.	Panshop keeper	9.50	208.	Ward boy	10.80
180.	Lottery ticket seller	9.50			
181.	Milk delivery man	9.50			
182.	Midwife	9.60			
183.	Peon	9.60			
184.	Coolie	9.60			
185.	Postman	9.70			
186.	Roadside seller	9.70			
187.	Astrologer	9.80			
188.	Servant	9.80			

Later, the hierarchical order of the vocations was changed into departmentwise or familywise groupings, (only for data collection purpose) to make it more convenient for the pupils, so that they may find vocations of the group clustering under the same heading. The vocations were classified into three prestige categories as given in Table 3.14.

Table - 3.14: Clustering of vocations into three ranking groups

Sl. No.	Ranking Group	No. of Vocations	Prestige
1.	High	17	1 to 4
2.	Average	11	4+ to 8
3.	Low	7	8+ to 11

For reasons behind vocational preference, the list of 19 possible reasons prepared by Vasudha Kamat was used on which also the qualitative analysis of the data was based (vide Appendix C).

3.8.2.4. Personal Information Proforma

A personal information proforma was prepared as one of the tools to collect information regarding pupils background. This was supplied to the pupils to be filled in along with the list of vocations for indicating their preferences, at that time of data collection.

3.8.2.5. Interview

Unstructured interviews with high school teachers, headmasters and administrators in Kohima and Mokokchung districts were arranged for suggestions to further improve the status of creative thinking and vocational preferences of tribal pupils in school education in consonance with the new educational policy in Nagaland. Some example of the questions asked during the interview are given here.

Examples

1. Do you have any outstanding pupils?
2. Do you see some peculiarity in their work?
3. Do you have any arrangement for identifying and developing creative thinking of pupils?
4. Does your school have programme of vocational guidance?
5. Do you sometimes share vocational preference matter with your students?
6. Do you arrange sometimes vocational/career talk by experts in the school?
7. How is students response?
8. Do you have educational guidance service in your school?
9. How do you help a student(s) who approaches you with some personal problems?
10. What do you think of appointing a permanent (regular) guidance Officer in each school of Nagaland?

11. What is your opinion about developing creative thinking and vocational preferences of students through guidance services in the schools of Nagaland?

3.8.3. Description of the Tools

In this section an attempt is made to describe in detail the construction of only the main tool used in the study i.e. a battery of verbal and non-verbal tests of creative thinking.

A. Verbal Tests of Creative Thinking

The verbal tests of creative thinking includes four (4) sub-tests namely:

1. Consequences test,
2. Unusual uses test,
3. New Relationships test, and
4. Product improvement test.

1. **Consequences test:** The consequences test consists of three hypothetical situations or statements:

What would happen if

- i) "A severe earthquake occurs in Nagaland?"
- ii) "All sources of electricity stop functioning beyond repair?"
- iii) "The people of Nagaland never die?"

In this test the subject is required to think as many consequences of these situations he can and write them under each situation in the space provided. The statement being hypothetical, minimise the effect of experience and provide the subject with an unlimited opportunity to make responses. The test encourages free play of imagination and originality. An example is given on the 'Instruction booklet' to acquaint the subject with the nature and type of the test. The time allowed for the three problems is 5 minutes each.

2. **Unusual uses test:** This test presents the subject with the names of three common objects-bamboo, Naga-spear and Naga-shawl and requires him to write as many novel, interesting and unusual uses of these objects as he can think of. This test measures the subject's ability to retrieve items of information from his personal information in the shortage. Evidently, it measures also the subject's ability to shift frames of reference to use the environment in an original manner. The time allowed for the three tasks is 4 minutes each.

3. **New Relationships test:** This test presents the subjects with three pairs of words apparently different - school and Naga-house, Gun and Dao, and Cotton and Wool and requires him to think and write as many novel relationships as possible between the two objects of each pair in the space provided for. The time allowed for each pair of words is 5 minutes.

4. **Product improvement test:** In this test the subject is asked to think of a simple plastic toy of a doll and suggest addition of new thing to it to make it more interesting for the children to play. The time allowed for the test is 6 minutes.

The total time required for administering the test was 48 minutes in addition to the time necessary for giving instructions, passing out instruction booklets, answer sheets and collecting them back.

B. Non-Verbal Tests of Creative Thinking

The non-verbal tests of creative thinking are intended to measure the individual's ability to deal with figural contents in a creative manner. Three types of activity are used for this purpose, viz. picture construction, picture completion and bows and horns. The total time required for administering the tests was 35 minutes, in addition to the time necessary for giving instructions, passing out instruction booklets, answer sheets and collecting them back. A brief description of these activities is given here.

1. Picture Construction

This activity presents the subject with two simple figures, a 'Cross' and a 'curve' (winding line) and requires him to construct an elaborate picture using each figure an

integral part. The subjects are allowed to turn the answer sheet in any direction they like to begin to draw their pictures. Emphasis is given on elaboration and originality. Ten minutes are given for this activity. The subject is also asked to give an interesting and unusual title to each picture. The titles may also be scored for elaboration and originality and added to the verbal creativity scores. The scoring of the titles, however, is entirely optional.

2. Picture Completion

This activity consists of 10 incomplete pictures which could be completed in any meaningful pictures of different objects. The subject is asked to make a picture which no one else in the group would be able to think of. He is also asked to give an interesting and suitable title to each picture he made. Fifteen minutes are given for the 10 items. Each item is scored for elaboration and originality. Titles may also be scored through it is entirely optional.

3. Bows and Horns

In this activity, the subject is provided with 7 bows and 7 horns, and is required to construct different meaningful pictures basing on the given stimuli. As the subject is encouraged here "to make multiple association to single stimuli", the responses could be scored for "flexibility" also, besides elaboration and originality. However, as it is also permitted

that if the test user wants to confine only to elaboration and originality, he can do so. A total of 10 minutes was given for the activity.

The subject is also asked to give an interesting and suitable title to each picture. But the scoring of the titles is optional.

The three activities taken together provide ample opportunity to the subject to use his imagination with different types of figural tasks and enable him to come out with some novel ideas.

3.8.3.1. Administration and Scoring

(i) Preparing for the test

The test administrator himself should acquaint first with the test by carefully going through the test booklet which contains both the general instructions and instructions for each activity. The time given for each activity should be strictly observed. The following are some of the points to be noted carefully.

1. The place for administering the tests should be such that pupils may work comfortably and without disturbance. The usual setting for the test administration is the classroom. Care should be taken that the class is not overcrowded. A maximum of 35 to 45 pupils may be taken up for group administration.

2. The pupils should be properly motivated to take part in the test. The word 'test' however, should never be used throughout the session. Rather it should be presented as a set of interesting activities which the children would enjoy doing. What is important is to avoid the threatening situation which is frequently associated with testing. The children should be told that they would soon be involved in an interesting activity in which they would be required to give interesting and novel responses to certain situations provided in the booklet.

3. The language used by the test administrator in giving instruction to children should be as simple as possible so that each one understands what is required of him/her.

4. The test administrator should preferably have a stop watch with him for timing each activity. A wrist watch with a centre second may also serve the purpose.

5. The test administrator should see that each child has available with him a pen or a pencil. He should however, have a stock of pens or pencils with him so that he may meet any emergency situation.

6. If both the verbal and non-verbal tests are to be administered, they should be given in two separate settings; the verbal test may be given first. if the two tests are

to be administered the same day a break of about 2 to 3 hours should intervene between the two settings.

7. For complete information about the creative thinking ability of a pupil, as far as possible both the tests should be used.

(ii) Preliminary Instructions to Pupils

The preliminary instruction to be given to pupils are recorded on the test booklet. After the instruction for motivating the children the test administrator should distribute the instruction booklets and answer sheets and ask them to fill in the columns for name, class etc. After they have filled in the required column, the test administrator asked them to put down their pens and pencils. He should then tell them to look at the general instructions which the test administrator should read aloud letting the pupils go through with him silently.

The general instruction given (in English) are as follows:

1. "Novelty, originality and creative ability play an important role in man's life. All inventions are the results of man's ability to think in novel ways. There are many things in this world which can be made more interesting and useful by the use of our imagination and creative thinking. People

who possess this ability have been responsible for many new inventions and discoveries."

2. On the following pages in this booklet you will find mentioned some interesting problems which, if tackled imaginatively and creatively may result in interesting and novel responses. You will enjoy doing these problems.

3. The activities given in this booklet are related to problems of your life. They do not have right or wrong answers. You have to think as many novel and interesting things about them as you can. Try to think of such things which no one else in your class might have thought of.

In fact, your novel and creative responses will enable us to know about your ability to think about things in a creative manner. Therefore, write as many novel and interesting ideas as you possibly can, even if they appear to you to be impossible.

4. You have been given four activities to do. For convenience sake each activity has been timed separately. Try to work as quickly as possible. If you finish an activity before the time for it is up, do not go to the next activity until you are told to do so. Use your remaining time to think quietly about the different tasks of the activity, and write whatever new ideas come to your mind about any of the tasks in that activity.

5. Attempt every task of the four activities. When you are asked to begin, immediately start your work. If you have to ask anything, please do it now. If you have no difficulty now, but find one later, quietly raise your hand from your seat so that the difficulty may be removed.

After the general instructions have been given, the test administrator should make sure that the pupils have understood what he wanted. The test administrator should now continue to read the instruction for the first activity (first) asking the pupils to go through with him silently as before. In this way, he should read the instruction for each 'activity' adjusting the time.

3.8.3.2. Procedure for Scoring

As there is no right or wrong responses for the test, much care has to be exercised at the time of scoring. The scorer has to acquaint himself fully with the method of scoring and use of scoring sheet.

Instructions for Scoring

1. Verbal Tests

(i) **Scoring for Fluency:** In scoring for fluency the scorer should go through the responses to the item in question carefully and strike off those which are irrelevant, or have been repeated. He should then count the remaining number

of unrepeated responses and enter this number as fluency score for the items in the appropriate box in the answer sheet.

(ii) **Scoring for Flexibility:** In scoring for flexibility the scorer should first acquaint himself with the categories of responses given for each item in the scoring guide. For convenience sake, he should note in bracket against each response, the alphabet serial of the category to which it belongs. If he comes across a response which has not been mentioned in the scoring guide he should himself determine the category to which it would seem to belong. If the response is such that it belongs to an entirely new category, not considered in the scoring guide, he should give it a new alphabet serial and note it down in bracket against the response in question. After he has gone through all the responses to a given item, he should see how many different categories have been used by the testee. This can be easily determined on the basis of the number of different alphabet serials used. The flexibility scores will be the total number of different alphabet serials used. Thus, of one out of eight responses given by the testee to an item, two have been given under category 'A', three have been given under category 'B', one has been given under category 'C', and two have been given under category 'D', then the flexibility score for this item will be four (4).

(iii) **Originality Scoring:** As has been mentioned above, originality scoring is done on the basis of statistical infrequency and uncommonness of the responses. The more uncommon the response the higher the originality weight. The weights for originality scoring has been determined on the basis of the following scheme.

- (a) If a response has been given by .1% to .99% of the testees, then the response will get an originality weight of 5.
- (b) If a response has been given by 1% to 1.99% of the testees, then the response will get an originality weight of 4.
- (c) If a response has been given by 2% to 2.99% of the testees, then the response will get an originality weight of 3.
- (d) If a response has been given by 3% to 3.99% of the testees, then the response will get an originality weight of 2.
- (e) If a response has been given by 4% to 4.99% of the testees, then the response will get an originality weight of 1.
- (f) If a response has been given by 5% or more of the testees, then the response will get an originality weight of zero.

2. Non-Verbal Tests

Scoring for Elaboration

Elaboration is represented by a person's ability to add pertinent details to the minimum and primary response to the stimulus figure. The minimum and the primary response to the stimulus figure is that response which gives essential meaning to the picture. The response title often tells what exactly the testee is trying to make. However, responses which can be reasonably interpreted and identified should be scored. In some cases, the answer sheets will have to be turned around or rotated in order to know exactly what the testee has drawn. Sometimes the response represents some abstract idea instead of a thing and so it has got to be scored.

It is also important for the scorer to see that the primary and minimum response is meaningful and relevant to the stimulus before it is scored. If the figure is not relevant and meaningful it should be ignored. The total elaboration score will consist of a score of one (1) for the primary and minimum response plus one score each for all the additional new ideas. An idea once scored in a picture should not be scored again in the same picture.

Scoring for the Title

It has to be kept in mind that titles are to be scored for elaboration and originality. These scores will be considered

as verbal rather than non-verbal and will have to be kept separate.

In scoring the title for elaboration again, care should be taken to identify the primary and minimum response and all additions should be taken as elaborations over it. For example, if a picture is of an alphabet (G) and the title reads, 'G' is the greatest alphabet because God is started with 'G', the elaboration score for this title will be the number of ideas included in the title — one for greatest, one for alphabet, one for God, one for started (total score = 4). The primary response here however, is 'G'. As the title is conveying an interesting and novel idea which is relevant and meaningful it is to be scored.

The titles are to be evaluated for originality on the basis of the following scheme.

- (i) A zero score will be given to the title if it just names the object such as cat, dog, basket etc. These are obvious 'thing' titles.
- (ii) A score of one will be given to a title if it attempts to describe the object in somewhat elaborate terms, such as 'A mask - Man', 'A rising sun', 'A village guard' etc.
- (iii) A score of two will be given to a title which is imaginative and goes beyond a mere physical description

of the object. For example, 'a joker in the theatre', 'don't play with love'.

- (iv) A score of three (3) will be given to a title which is abstract but appropriate and says something which goes beyond what can be observed. Example, 'a box with full of gold send from Africa'.

3.8.3.3. Score Summary

A table has been provided in the answer sheet to summarise the scores for fluency, flexibility and originality (elaboration & originality for non-verbal) obtained by the testee on different activities. The total fluency, flexibility and originality (or elaboration and originality) scores have to be entered in the appropriate columns of the table. The composite creativity scores should be entered after converting the raw scores into standard scores. This is necessary because the standard deviations of the three scores (or two scores for non-verbal) sometimes markedly vary, and if raw scores are added up then the ranking will be greatly affected.

3.9.0. Procedure for Data Collection

The final data collection was conducted in the months of March and April 1989. The battery of creative thinking tests (verbal and non-verbal) was administered to the pupils (Class IX) in 11 selected high schools in Mokokchung, and 15 selected high schools in Kohima districts respectively.

used for finding the correlations was given by Garrett (1981, pp. 142-143).

- (ii) To determine the prestige values of different vocations, Median ranking for each vocation was computed from the rankings given by 50 experts. The formula used for finding the median of the series of ungrouped scores was the one given by Furguson (1959).
- (iii) The means and standard deviation for scores on various criterion variables relating to creative thinking and vocational preferences were computed.
- (iv) The inter-group mean difference on each variable for pupils belonging to the two tribes were tested by employing 't-test', (significance difference of large as well as small independent samples (Garrett, pp.214 and 224), to find the differences between the groups concerned on a given variable).

Norms were found and all the composite scores were transformed into T-scores. Testing of the hypotheses was based on the statistical difference of means computed from the total creative thinking (TC) scores (T-scores). Alpha .05 was fixed as indicator of rejecting or retaining any null hypothesis.

3.11.0. Scope and Delimitations of the Study

The study was designed to:

- (i) Contribute a battery of verbal and non-verbal tests

- of creative thinking and a vocation prestige scale for indicating vocational preferences, suitable to high school tribal pupils in Nagaland;
- (ii) Contribute to the profile of creative thinking and vocational preferences of Ao and Angami boys and girls which will be useful for academicians, administrators and planners associated with human resource development in Nagaland; and
 - (iii) Contribute to the levelling up of the tribal way of life suitable to modern trends in education and perspective planning.

The study was delimited to two major tribes - Aos and Angamis in Mokokchung and Kohima districts and confined to Class IX pupils only. Educational background of the parents of the final samples was studied but their economic status was not considered for the study.

In addition to the quantitative analyses, qualitative analysis or relating to the 'reasons behind vocational preference' was also attempted.

3.12.0. Conclusion

Thus, the tools used in the study were constructed and standardised following the steps required. Accompanied instructions for each tool were also prepared. Following

the instructions the tools were administered to the pupils and data were collected. The pupils were found taking interest in doing the test-activities which could also provoke them for an entirely new trend of thinking which they hardly had any experience before. Hence the NTCT (verbal and non-verbal) were found suitable to the pupils as well as in fulfilling the purposes of the study.

CHAPTER IV

ANALYSIS OF DATA AND INTERPRETATION OF RESULTS

ANALYSIS OF DATA AND INTERPRETATION OF RESULTS

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ANALYSIS OF DATA AND INTERPRETATION OF RESULTS

4.0.0. Introduction

In the previous chapter, discussion has been done on the methodology employed in the study. The present chapter is devoted to analysis of data and interpretation of results. The patterns of comparison followed were: (i) Between the two tribes; (ii) Within the tribes; and (iii) Within the variables.

4.1.0. Testing of the Hypotheses

In this section, the related hypothesis framed were tested by computing the significance of difference between means (t-test). The hypotheses relating to creative thinking were tested first followed by testing of hypotheses relating to vocational preferences (from prestige scores). It may be mentioned that in case of vocational preference, a smaller prestige score mean indicates the concerned group's preferring for more prestigious vocations to the group having a larger mean. Necessary graphs were inserted at the appropriate places to support in better communication of the results shown in the tables concerned.

4.1.1. Testing of Hypotheses Relating to Creative Thinking

Under this heading, 20 hypotheses relating to creative thinking were tested. The hypotheses were assembled under three sub-heads: (i) Between the two tribes; (ii) Within the tribes; and (iii) Within the variables.

4.1.1.1. Between the Two Tribes

Hypothesis 1

"There is no significant difference between Ao and Angami tribes (represented by pupils) in their levels of creative thinking."

The significance of difference between the means of total creative thinking (TC) scores belonging to the two tribes (represented by pupils) is computed as shown in Table 4.1.

Table - 4.1: t-test for all Ao and Angami pupils

Tribes	N	M	SD	t	Remarks
Ao	200	263.03	48.55	.81	NS
Angami	120	268.68	66.49		

NS : Not Significant

Result

Table 4.1 shows that the Ao pupils (N=200) had a TC mean score of 263.03 with a standard deviation of 48.55 while the Angami pupils (N=120) had a TC mean score of 269.68 with a standard deviation of 66.49. The computed t-value amounted to 0.81 which was not significant at .05 level. On the basis of computation, the first hypothesis was retained. However, it is to be noted that the Tc mean of Angami (268.68) was higher than that of the Aos (263.03).

The finding reveals that in general, the level of creative thinking between the two tribes (represented by pupils) is more or less equal, however, in specific (when divided into small groups) the level is yet to be seen.

Hypothesis 2

"There is no significant difference between Ao and Angami High Creative (HC) pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami HC pupils, is computed as shown in Table 4.2.

Table - 4.2: t-test for Ao and Angami HC pupils

Tribes	N	M	SD	t	Remarks
Ao HC	10	310.15	15.28	8.22	**
Angami HC	60	333.98	19.13		

** Significant at .01 level.

Table 4.2 shows that Ao HC pupils had a TC mean score of 310.15 with a SD of 15.28 while Angami HC pupils had a TC mean score of 333.98 with a SD of 19.13. The computed t-value amounted to 8.22 which was significant at .01 level. On the basis of computation, the second hypothesis was rejected.

The finding reveals that Angami HC pupils' level of creative thinking is higher than that of their counterpart Ao HC pupils.

Hypothesis 3

"There is no significant difference between Ao and Angami Low Creative pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami LC pupils, is computed as shown in Table 4.3.

Table - 4.3: t-test for Ao and Angami LC pupils

Tribes	N	M	SD	t	Remarks
Ao LC	100	215.91	6.28	13.80	**
Angami LC	60	203.37	5.09		

** Significant at .01 level.

Results

Table 4.3 shows that Ao LC pupils had a TC mean score of 215.91 with a SD of 6.28 while Angami LC pupils had a TC mean score of 203.37 with a SD of 5.09. The computed t-value amounted to 13.80 which was significant at .01 level. On the basis of computation, the third hypothesis was rejected.

The finding reveals that Ao LC pupils level of creative thinking is higher than the Angami LC pupils level of creative thinking.

Hypothesis 4

"there is no significant difference between Ao and Angami High Creative boys in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami HC boys, is computed as shown in Table 4.4.

Table - 4.4: t-test for Ao and Angami HC boys (HCB)

Tribes	N	M	SD	t	Remarks
Ao HCB	44	305.36	14.69	7.96	**
Angami HCB	37	338.27	21.23		

** Significant at .01 level.

Results

Table 4.4 shows that Ao HCB had a TC mean score of 305.36 with a SD of 14.69 while Angami HCB had a TC mean score of 338.27 with a SD of 21.23. The computed t-value amounted to 7.96 which was significant at .01 level. On the basis of computation, the fourth hypothesis was rejected.

The finding reveals that Angami HCB level of creative thinking is higher than that of their counterparts Ao HCB.

Hypothesis 5

"There is no significant difference between Ao and Angami Low Creative boys in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami LCB, is computed as shown in Table 4.5.

Table - 4.5: t-test for Ao and Angami LCB

Tribe	N	M	SD	t	Remarks
Ao LCB	44	216.90	5.95	10.90	**
Angami LCB	35	203.57	4.93		

Results

Table 4.5 shows that Ao LCB had a TC mean score of 216.91 with a SD of 5.95 while Angami LCB had a mean score of 203.57 with a SD of 4.93. The computed t-value amounted to

10.90 which was significant at .01 level. On the basis of computation, the fifth hypothesis was rejected.

The finding reveals that Ao LCB level of creative thinking is higher than their counterpart Angami LCB.

Hypothesis 6

"There is no significant difference between Ao and Angami High Creative girls (HCG in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami HCG, is computed as shown in Table 4.6.

Table - 4.6: t-test for Ao and Angami HCG

Tribes	N	M	SD	t	Remarks
Ao HCG	56	313.91	14.67	4.07	**
Angami HCG	23	327.09	12.34		

** Significant at .01 level.

Results

Table 4.6 shows that Ao HCG and a TC mean score of 313.91 with a SD of 14.67 while Angami HCG had a TC mean score of 327.09 with a SD of 12.34. The computed t-value amounted to 4.07 which was significant at .01 level. On the basis of computation, the sixth hypothesis was rejected.

The finding reveals that Angami HCG level of creative thinking is higher than Ao HCG level of creative thinking. A graphic comparison of the two groups is shown in Fig.4.6.

Hypothesis 7

"There is no significant difference between Ao and Angami Low Creative Girls (LCG) in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami LCG, is computed as shown in Table 4.7.

Table - 4.7: t-test for Ao and Angami LCG

Tribes	N	M	SD	t	Remarks
Ao LCG	56	215.13	6.41	8.85	**
Angami LCG	25	203.08	5.29		

** Significant at .01 level.

Results

Table 4.7 shows that Ao LCG had a TC mean score of 215.13 with a SD of 6.41 while Angami LCG had a mean score of 203.008 with a SD 5.29. The computed t-value amounted to 8.85 which was significant at .01 level. On the basis of computation, the seventh hypothesis was rejected.

The finding reveals that Ao LCG have higher level of creative thinking than the Angami LCG although are Low creative groups.

Hypothesis 8

"There is no significant difference between Ao and Angami Rural High Creative (RHC) pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami RHC pupils, is computed as shown in Table 4.8.

Table - 4.8: t-test for Ao and Angami RHC pupils

Tribe	N	M	SD	t	Remarks
Ao RHC	47	312.94	15.41	5.43	**
Angami RHC	31	333.72	17.20		

Results

Table 4.8 shows that Ao RHC pupils had a TC mean scores of 312.94 with a SD of 15.41 while Angami RHC pupils had a TC mean score of 333.72 with a SD of 17.20. The computed t-value amounted to 5.43 which was significant at .01 level. On the basis of the computation, the eighth hypothesis was rejected.

The finding reveals that Angami RHC pupils display superiority in creative thinking to their counterpart Ao RHC pupils.

Hypothesis 9

"There is significant difference between Ao and Angami Rural Low Creative pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami RLC pupils, is computed as shown in Table 4.9.

Table - 4.9: t-test for Ao and Angami RLC pupils

Tribe	N	M	SD	t	Remarks
Ao RLC	47	215.74	5.49	11.44	**
Angami RLC	45	203.24	4.99		

Results

Table 4.9 shows that Ao RLC pupils had a TC mean score of 215.74 with a SD of 5.49 while Angami RLC pupils had a TC mean score of 203.24 with a SD of 4.99. The computed t-value amounted to 11.44 which was significant at .01 level. On the basis of the computation, the ninth hypothesis was rejected.

The finding reveals that Ao RLC pupils' level of creative thinking is higher than the Angami RLC pupils' level of creative thinking.

Hypothesis 10

"There is no significant difference between Ao and Angami Urban High Creative (UHC) pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami ULC pupils, is computed as shown in Table 4.10.

Table - 4.10: t-test for Ao and Angami UHC pupils

Tribes	N	M	SD	t	Remarks
Ao UHC	53	307.68	14.73	6.11	**
Angami UHC	29	334.23	20.73		

Results

Table 4.10 shows that Ao UHC pupils had a TC mean score of 307.68 with a SD of 14.73 while Angami UHC pupils had a TC mean scores of 334.23 with a SD of 20.73. The computed t-value amounted to 6.11 which was significant at .01 level. On the basis of the computation, the tenth hypothesis was rejected.

The finding reveals that Angami UHC pupils displayed superiority in their creative thinking over their counterparts Ao UHC pupils.

Hypothesis 11

"There is no significant difference between Ao and Angami Urban Low Creative (ULC) pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Ao and Angami ULC pupils, is computed as shown in Table 4.11.

Table - 4.11: t-test for Ao and Angami ULC pupils

Tribe	N	M	SD	t	Remarks
Ao ULC	53	216.06	6.90	7.36	**
Angami ULC	15	203.73	5.35		

Results

Table 4.11 shows that Ao ULC pupils had a TC mean scores of 216.06 with a SD of 6.90 while Angami ULC pupils had a TC mean score of 203.73 with a SD of 5.35. The computed t-value amounted to 7.36 which was significant at .01 level. On the basis of the computation, the eleventh hypothesis was rejected.

The finding reveals that Ao ULC pupils level of creative thinking is higher than that of their counterpart Angami ULC pupils.

4.1.1.2. Within the Tribes

Hypothesis 12

"There is no significant difference between High Creative pupils of More Educated (ME) and Less Educated (LE) parents of Ao tribe in their levels of creative thinking."

The significance of difference between the means of TCs belonging to HC pupils of ME and LE parents of Ao tribe, is computed as shown in Table 4.12.

Table - 4.12: t-test for HC pupils of ME and LE parents of Ao tribe

Group	N	M	SD	t	Remarks
ME (HC)	82	310.33	15.54	.27	NS
LE (HC)	18	309.32	14.03		

Results

Table 4.12 shows that HC pupils of ME parents had a TC mean score of 310.33 with a SD of 15.54 while HC pupils of LE parents had a TC mean score of 309.32 with a SD of 14.03. The computed t-value amounted to .27 which was not significant at .05 level. On the basis of the computation, the twelfth hypothesis was retained.

The finding reveals that varied educational background of Ao parents of HC pupils, does not influence much on the creative thinking of their children.

Hypothesis 13

"There is no significant difference between High Creative pupils of More Educated (ME) and Less Educated (LE) parents of Angami tribe in their levels of creative thinking."

The significance of difference between the means of TCs belonging to HC pupils of ME and LE parents of Angami tribe, is computed as shown in Table 4.13.

Table - 4.13: t-test for HC pupils of ME and LE parents of Angami tribe

Group	N	M	SD	t	Remarks
ME (HC)	45	331.87	18.46	1.46	NS
LE (HC)	15	340.33	19.67		

Results

Table 4.13 shows that HC pupils of ME parents had a TC mean scores of 331.87 with a SD of 18.46 while HC pupils of LE parents had a TC mean score of 340.33 with a SD of 19.67. The computed t-value amounted to 1.46 which was not significant at .05 level. On the basis of the computation, the thirteenth hypothesis was retained.

The finding reveals that varied educational background of Angami parents of HC pupils does not influence much on the creative thinking of their children.

Hypothesis 14

"There is no significant difference between Low Creative pupils of more educated and illiterate parents of Ao tribe in their levels of creative thinking."

The significance of difference between the means of TCs belonging to LC pupils of ME and ILL parents of Ao Tribe, is computed as shown in Table 4.14.

Table - 4.14: t-test for LC pupils of ME and ILL parents of Ao tribe

Group	N	M	SD	t	Remarks
ME (LC)	55	216.55	5.94	1.15	NS
ILL (LC)	20	214.80	5.81		

Results

Table 4.14 shows that LC pupils of ME parents had a TC mean score of 216.55 with a SD of 5.94 while LC pupils of ILL parents had a TC mean score of 214.80 with a SD of 5.81. The computed t-value amounted to 1.15 which was not significant at .05 level. On the basis of the computation, the fourteenth hypothesis was retained.

The finding reveals that varied educational background of Ao parents of LC pupils does not influence much on the creative thinking of their children.

Hypothesis 15

"There is no significant difference between Low Creative pupils of more educated and illiterate parents of Angami tribe in their levels of creative thinking."

The significance of difference between the means of TCs belonging to LC pupils of ME and ILL parents of Angami tribe, is computed as shown in Table 4.15.

Table - 4.15: t-test for LC pupils of ME and ILL parents of Angami tribe

Group	N	M	SD	t	Remarks
ME (LC)	29	203.55	5.25	.09	NS
ILL (LC)	10	202.90	3.53		

Results

Table 4.15 shows that LC pupils of ME parents had a TC mean score of 203.55 with a SD of 5.25 while LC pupils of ILL parents had a TC mean score of 202.90 with a SD of 3.53. The computed t-value amounted to .09 which was not significant at .05 level. On the basis of the computation, the fifteenth hypothesis was retained.

The findings reveals that varied educational back-ground of Angami parents of LC pupils does not influence much on the creative thinking of their children.

4.1.1.3. Within the Variables

Hypothesis 16

"There is no significant difference between Aided (A) and Government (G) School Tribal pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Aided (N=48) and Government (N=151) School pupils relating to their levels of creative thinking, is computed as shown in Table 4.16.

Table - 4.16: t-test for Aided and Government school pupils

School	N	M	SD	t	Remarks
A	48	261.83	62.08	.44	NS
G	151	257.48	53.57		

Results

Table 4.16 shows that Aided School pupils had a TC mean score of 261.83 with a SD of 62.08 while Government school pupils had a TC mean score of 257.48 with a SD of 53.57. The computed t-value amounted to .44 which was not significant at .05 level. On the basis of the computation,

the sixteenth hypothesis was retained, however, it can be noted that the mean of Aided school ($M = 261.83$) was higher than the mean of Government school ($M = 257.48$).

The finding shows that there is no difference between Aided and Government school pupils in their levels of creative thinking.

Hypothesis 17

"There is no significant difference between Government (G) and Private (P) school tribal pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Government school pupils and Private school pupils relating to their creative thinking, is computed as shown in Table 4.17.

Table - 4.17: t-test for Government and Private school pupils

School	N	M	SD	t	Remarks
G	151	257.48	53.57	2.79	**
P	121	276.03	55.08		

Results

Table 4.17 shows that Government school pupils had a TC mean score of 257.48 with a SD of 53.57 while Private school pupils had a TC mean score of 276.03 with a SD of 55.08. The computed t-value amounted to 2.79 which was signi-

ficant at .01 level. On the basis of the computation, the seventeenth hypothesis was rejected.

The finding reveals that Private school pupils' level of creative thinking is higher than that of Government school pupils. This difference can be due to the differences in the management systems the two types of schools have.

Hypothesis 18

"There is no significant difference between Aided and Private School Tribal pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Aided school pupils and Private school pupils relating to their levels of creative thinking, is computed as shown in Table 4.18.

Table - 4.18: t-test for Aided and Private School pupils

School	N	M	SD	t	Remarks
A	48	261.83	62.08	1.38	NS
P	121	276.03	55.08		

Results

Table 4.18 shows that Aided school pupils had a TC mean score of 261.83 with a SD of 62.08 while Private school pupils had a TC mean score of 276.03 with a SD of 55.08.

The computed t-value amounted to 1.38, which was not significant at .05 level. On the basis of the computation, the eighteenth hypothesis was retained, but it can be noted that Private school mean (M = 276.08) is higher than the Aided school (M = 261.83).

The finding suggests that there is no difference between Aided and Private school pupils in their levels of creative thinking. The difference seen in the two means (which is not statistically significant) may be attributed to the difference in the managements (one is semi-government, the other private) the two schools have.

Hypothesis 19

"There is no significant difference between Rural and Urban Tribal pupils in their levels of creative thinking."

The significance of difference between the means of TCs belonging to Rural and Urban pupils relating to their levels of creative thinking, is computed as shown in Table 4.19.

Table - 4.19: t-test for Rural and Urban pupils

Location	N	M	SD	t	Remarks
Rural	168	259.95	57.15	1.75	NS
Urban	152	270.89	54.46		

Results

Table 4.19 shows that Rural pupils had a TC mean score of 259.95 with a SD of 57.15 while Urban pupils had a TC mean score of 270.89 with a SD of 54.46. The computed t-value amounted to 1.75 but not significant at .05 level. On the basis of the computation, the nineteenth hypothesis was retained, however, it must be noted that the Urban mean (M = 270.89) is higher than the Rural mean (M = 259.95).

The finding reveals that there is no difference between Rural and Urban pupils in their levels of creative thinking. The difference seen (which is not statistically significant) between the two means may be attributed to the differences existed in the two localities.

Hypothesis 20

"There is no significant difference between tribal boys and girls in their levels of creative thinking."

The significant of difference between the means of TCs belonging to Boys (N = 160) and Girls (N = 160) relating to their levels of creative thinking, is computed as shown in Table 4.20.

Table - 4.20: t-test for boys and girls

Sex	N	M	SD	t	Remarks
Boys	160	266.38	57.69	.39	NS
Girls	160	263.91	54.55		

Results

Table 4.20 shows that Boys had a TC mean score of 266.38 with a SD of 57.69 while Girls had a TC mean score of 263.91 with a SD of 54.55. The computed t-value amounted to .39 which was not significant at .05 level. On the basis of the computation, the twentieth hypothesis was retained, but, it may be noted that the Boys' mean ($M = 266.38$) is larger than the Girls' mean ($M = 263.91$).

The finding reveals that there is no difference between Boys and Girls in their levels of creative thinking. Further, it may be stated that sex does not influence much on the creative thinking of Boys and Girls in Naga society.

4.1.2. Testing of hypotheses relating to Vocational Preferences (based on Prestige scores)

Under this section, hypotheses relating to Vocational Preferences were tested. The hypotheses were tested under two sub-headings: (i) Between the two tribes, and (ii) Within the tribes.

4.1.2.1. Between the two tribes

Hypothesis 21

"No significant difference exists in the means of Vocational Prestige scores between Ao and Angami pupils (tribes)."

OGIVE REPRESENTING THE VOCATIONAL PREFERENCES
OF AO AND ANGAMI TRIBES

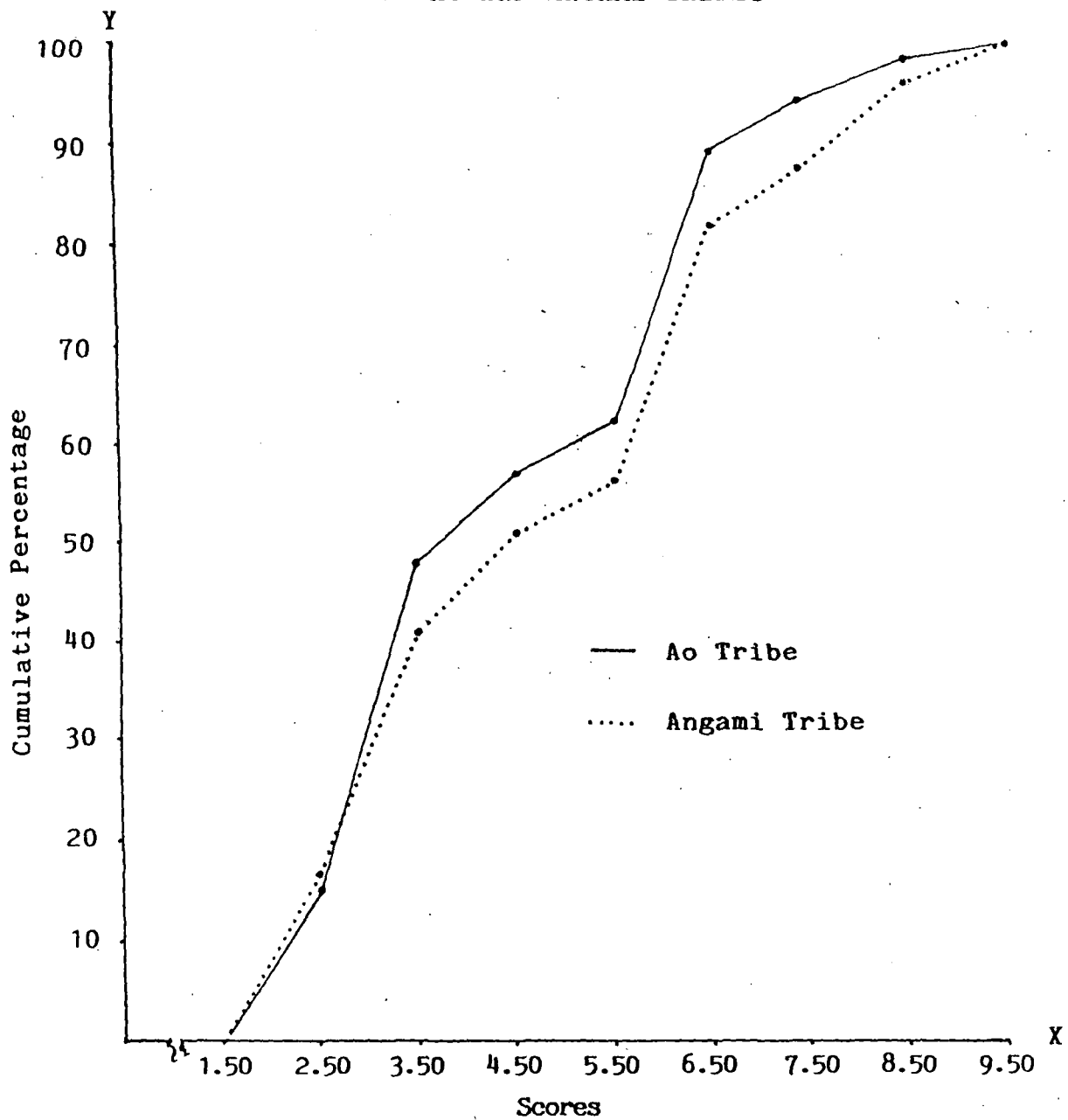


Fig. 4.1

The significance of difference between the means of vocational prestige scores belonging to Ao (N = 200) and Angami (N = 120) pupils, relating to their vocational preferences, is computed as shown in Table 4.21.

Table - 4.21: t-test for vocational prestige scores of Ao and Angami pupils

Tribe	N	M	SD	t	Remarks
Ao	200	5.25	1.82	1.33	NS
Angami	120	5.55	2.02		

Results

Table 4.21 shows that Ao pupils had a prestige score mean of 5.25 with a SD of 1.82 while Angami pupils had a prestige score mean of 5.55 with a SD of 2.02. The computed t-value amounted to 1.33 which was not significant at .05 level. Hence, on the basis of the computation, the twenty first hypothesis was retained.

The finding shows that there is no difference in the vocational preferences of Ao and Angami pupils. They prefer, more or less for the same kind of vocations. A graphic comparison of the two groups is shown in Fig. 4.1.

Hypothesis 22

"No significant difference exists in the means of vocational prestige scores between High Creative (HC) and Low Creative (LC) Tribal pupils of the two districts."

OGIVE REPRESENTING THE VOCATIONAL PREFERENCES
OF HC AND LC TRIBAL PUPILS

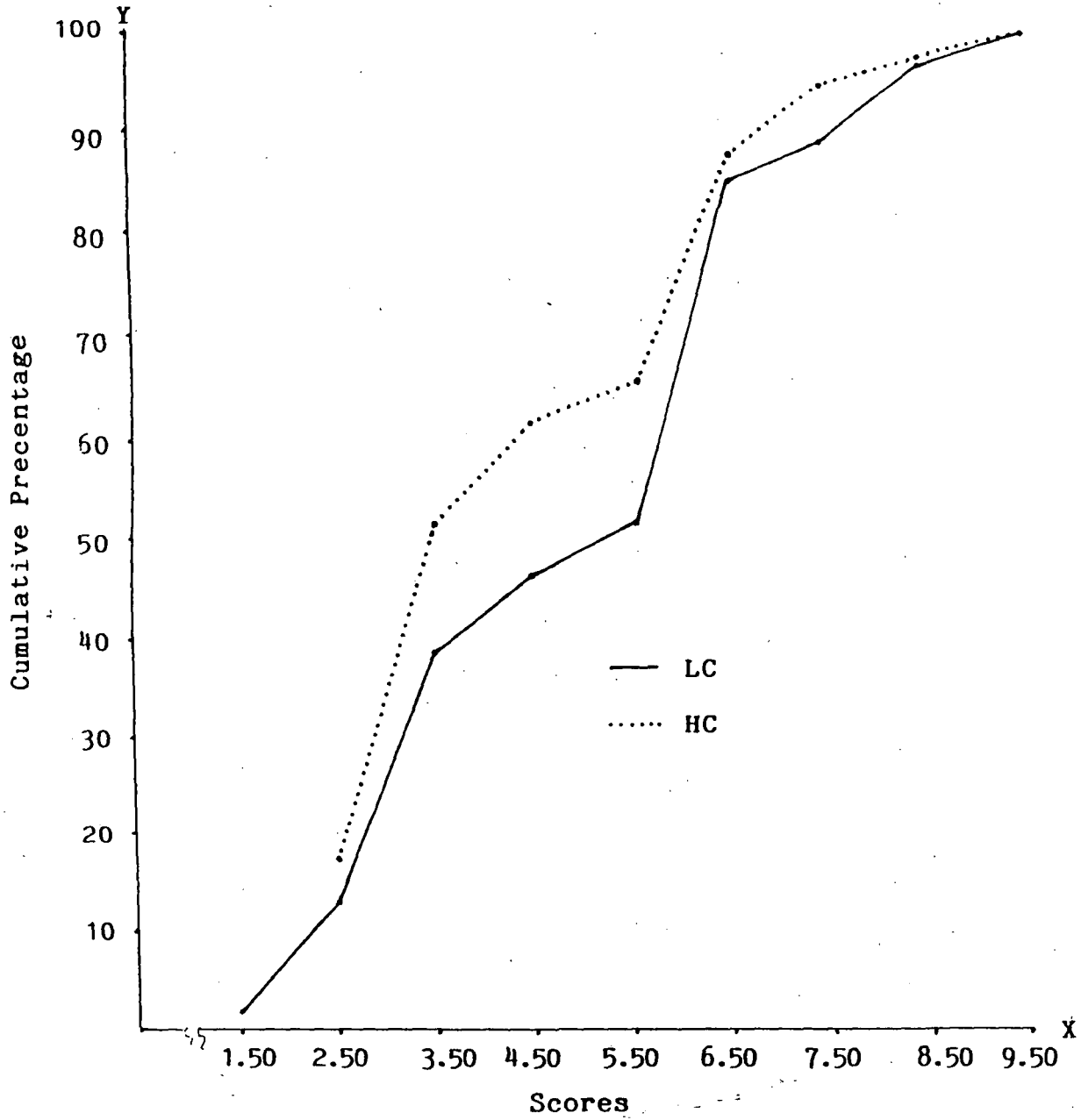


Fig. 4.2

The significance of difference between the means of vocational prestige scores belonging to HC and LC pupils relating to their vocational preferences is computed as shown in Table 4.22.

Table 4.22: t-test for vocational prestige scores of HC and LC pupils

Group	N	M	SD	t	Remarks
HC	160	5.08	1.79	2.67	**
LC	160	5.64	1.97		

Results

Table 4.22 shows that HC pupils had a prestige score mean of 5.08 with a SD of 1.79 while LC pupils had a prestige score mean of 5.64 with a SD of 1.97. The computed t-value amounted to 2.67 which was significant at .01 level. Hence, on the basis of the computation, the twenty second hypothesis was rejected.

The finding reveals that HC pupils prefer for more prestigious vocations (1.50 to 4.00, vide Table 3) than that of LC pupils. A graphic comparison of the two groups is given in Fig. 4.2.

Hypothesis 23

"No significant difference exists in the means of vocational prestige scores between Ao and Angami High Creative (HC) pupils."

OGIVE REPRESENTING VOCATIONAL PREFERENCES
OF AO AND ANGAMI HC PUPILS

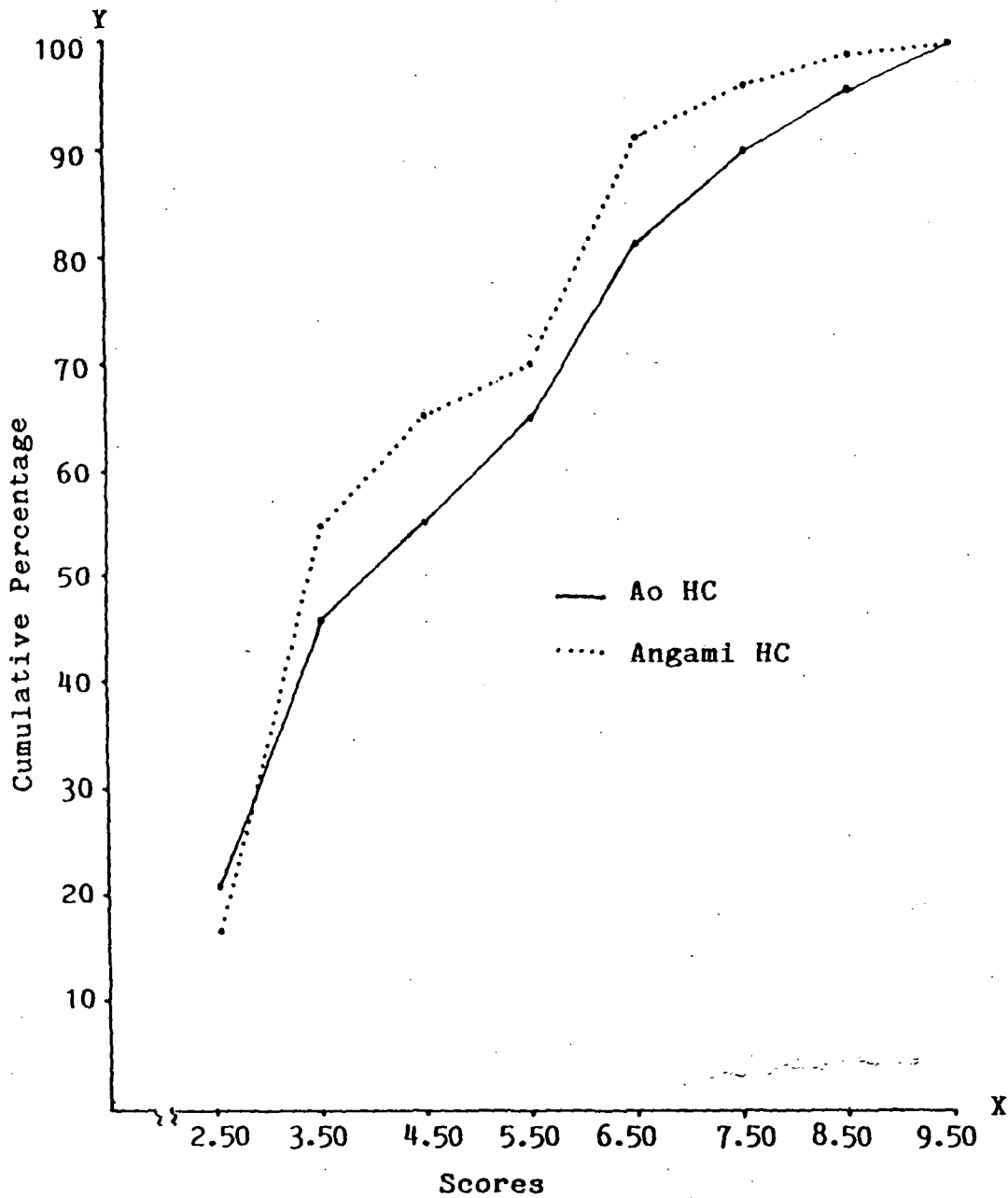


Fig. 4.3

The significance of difference between the means of vocational prestige scores belonging to Ao and Angami HC pupils relating to their vocational preferences, is computed as shown in Table 4.23.

Table - 4.23: t-test for vocational prestige scores of HC pupils

Tribe	N	M	SD	t	Remarks
Ao HC	100	4.93	1.64	1.32	NS
Angami HC	60	5.33	1.98		

Results

Table 4.23 shows that Ao HC pupils had a prestige score mean of 4.93 with a SD of 1.64 while Angami HC pupils had a prestige score mean of 5.33 with a SD of 1.98. The computed t-value amounted to 1.32 which was not significant at .05 level, however, it must be noted that Ao HC pupils' mean (M = 4.93) is smaller than the Angami HC pupils' mean (M = 5.33). On the basis of the computation the twenty third hypothesis was retained.

The finding reveals that both Ao and Angami HC pupils prefer for the kind of vocations having more or less equal prestige status in Naga culture. A graphic comparison of the two groups is shown in Fig. 4.3.

OGIVE REPRESENTING VOCATIONAL PREFERENCES
OF AO AND ANGAMI LC PUPILS

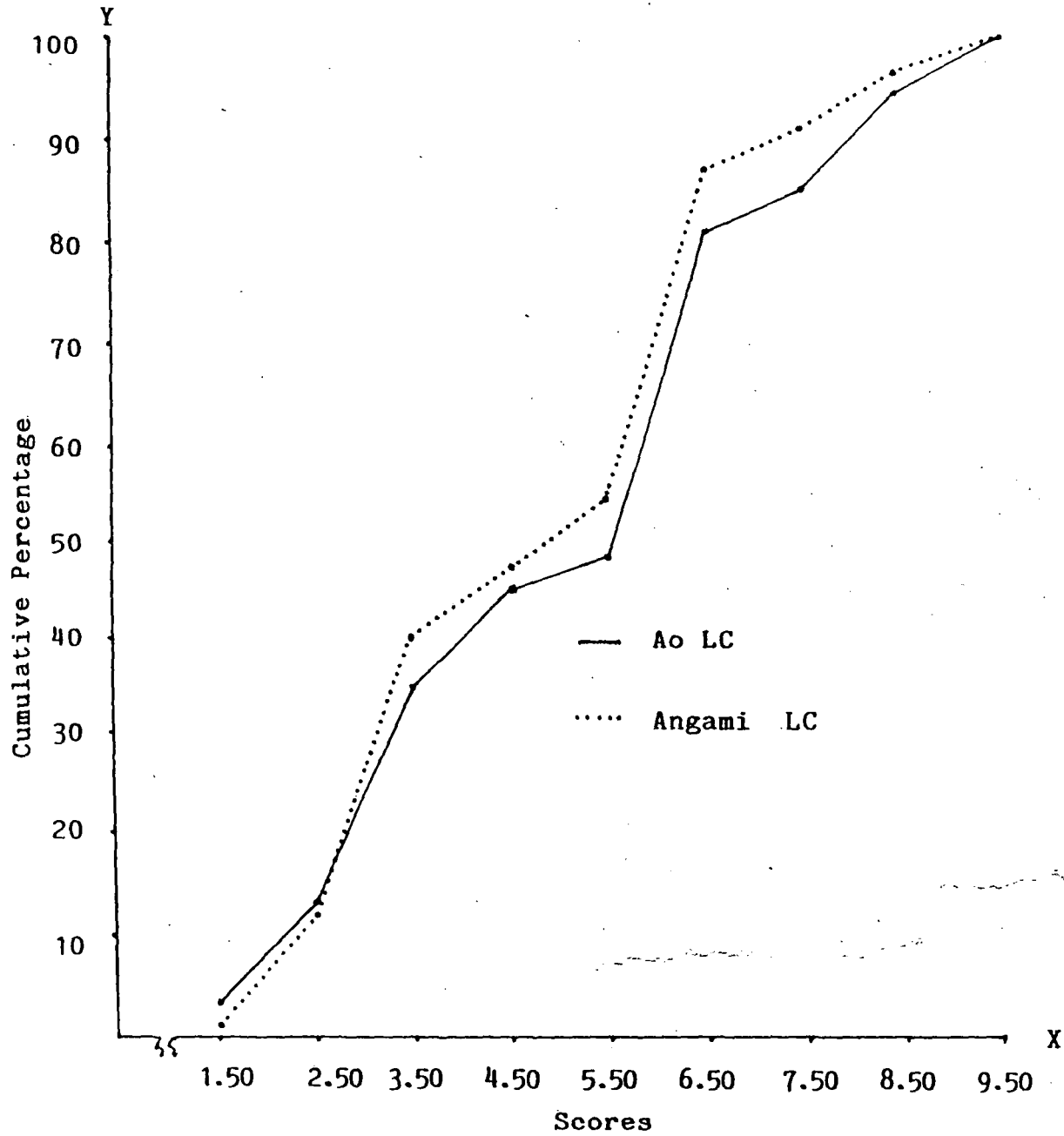


Fig. 4.4

Hypothesis 24

"No significant difference exists in the means of vocational prestige scores between Ao and Angami Low Creative pupils."

The significance of difference between the means of vocational prestige scores belonging to Ao and Angami LC pupils relating to their vocational preferences is computed as shown in Table 4.24.

Table - 4.24: t-test for vocational prestige scores of LC pupils

Tribe	N	M	SD	t	Remarks
Ao LC	100	5.57	1.93	.61	NS
Angami LC	60	5.77	2.03		

Results

Table 4.24 shows that Ao LC pupils had a prestige score mean of 5.57 with a SD of 1.93 while Angami LC pupils had a prestige score mean of 5.77 with a SD of 2.03. The computed t-value amounted to .61 which was not significant at .05 level. On the basis the computation, the twentyfourth hypothesis was retained.

The finding reveals that both Ao and Angami LC pupils prefer for the kind of vocations having more or less equal prestige status in Naga culture. A graphic comparison of the two groups is shown in Fig. 4.4.

Hypothesis 25

"No significant difference exists in the means of vocational prestige scores between Ao and Angami High Creative Boys (HCB)."

The significance of differences between the means of vocational prestige scores belonging to Ao and Angami HCB relating to their vocational preferences, is computed as shown in Table 4.25.

Table - 4.25: t-test for vocational prestige scores of HCB

Tribe	N	M	SD	t	Remarks
Ao HCB	44	5.01	1.72	.76	NS
Angami HCB	37	5.33	2.02		

Results

Table 4.25 shows that Ao HCB had a prestige score mean of 5.01 with a SD of 1.72 while Angami HCB had a prestige score mean of 5.53 with a SD of 2.02. The computed t-value amounted to .76 which was not significant at .05 level. Hence, on the basis of the computation, the twentyfifth hypothesis was retained.

The finding reveals that both Ao and Angami HCB prefer for the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 26

"No significant difference exists in the means of vocational prestige scores between Ao and Angami Low Creative Boys (LCB)."

The significance of difference between the means of vocational prestige scores belonging to Ao and Angami LCB relating to their vocational preferences, is computed as shown in Table 4.26.

Table - 4.26: t-test for vocational prestige scores of LCB

Tribe	N	M	SD	t	Remarks
Ao LCB	44	5.42	1.91	.69	NS
Angami LCB	35	5.12	1.92		

Results

Table 4.26 shows that Ao LCB had a prestige score mean of 5.42 with a SD of 1.91 while Angami LCB had a prestige score mean of 5.12 with a SD of 1.92. The computed t-value amounted to .69 which was not significant at .05 level. Hence, on the basis of the computation, the twentysixth hypothesis was retained.

The finding reveals that both Ao and Angami LCB prefer the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 27

"No significant difference exists in the means of vocational prestige scores between Ao and Angami High Creative Girls (HCG)."

The significance of difference between the means of vocational prestige scores belonging to Ao and Angami HCG relating to their vocational preferences, is computed as shown in Table 4.27.

Table - 4.27: t-test for vocational prestige scores of HCG

Tribe	N	M	SD	t	Remarks
Ao HCG	56	4.87	1.57	1.02	NS
Angami HCG	23	5.33	1.92		

Results

Table 4.27 shows that Ao HCG had a prestige score mean of 4.87 with a SD of 1.57 while Angami HCG had a prestige score mean of 5.33 with a SD of 1.92. The computed t-value amounted to 1.02 which was not significant at .05 level. Hence, on the basis of the computation, the twentyseventh hypothesis was retained.

The finding reveals that both Ao and Angami HCG prefer for the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 28

"No significant difference exists in the means of vocational prestige scores between Ao and Angami Low Creative Girls (LCG)."

The significance of difference between the means of vocational prestige scores belong to Ao and Angami LCG relating to their vocational preferences, is computed as shown in Table 4.28.

Table - 4.28: t-test for vocational prestige scores of LCG

Tribe	N	M	SD	t	Remarks
Ao LCG	56	5.68	1.93	2.26	*
Angami LCG	25	6.69	1.83		

* Significant at .05 level.

Results

Table 4.28 shows that Ao LCG had a prestige score mean of 5.68 with a SD of 1.93 while Angami LCG had a prestige score mean of 6.69 with a SD of 1.83. The computed t-value amounted to 2.26 which was significant at .05 level. Hence, on the basis of the computation, the twentyeighth hypothesis was rejected.

The finding reveals that Ao LCG prefer for more prestigious vocations to their counterpart Angami LCG.

4.1.2.2. Within the tribes

Hypothesis 29

"No significant difference exists in the means of vocational prestige scores between Rural and Urban High Creative Boys (RHCB/UHCB) of Ao tribe."

The significance of difference between the means of vocational prestige scores belonging to Rhcb and UHCB of Ao tribe relating to their vocational preferences, is computed as shown in Table 4.29.

Table - 4.29: t-test for RHCB and UHCB of Ao tribe

Group	N	M	SD	t	Remarks
RHCB	21	5.35	1.93	1.30	NS
UHCB	23	4.70	1.43		

Results

Table 4.29 shows that RHCB had a prestige score mean of 5.35 with a SD of 1.93 while UHCB had a prestige score mean of 4.70 with a SD of 1.43. The computed t-value amounted to 1.30 which was not significant of .05 level. Hence, on the basis of the computation, the twentyninth hypothesis was retained.

The finding reveals that both RHCB and UHCB of Ao tribe prefer for the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 30

"No significant difference exists in the means of vocational prestige scores between Rural and Urban Low Creative Boys (RLCB/ULCB) of Ao tribe."

The significance of difference between the means of vocational prestige scores belonging to RLCB and ULCB of Ao tribe relating to their vocational preferences, is computed as shown in Table 4.30.

Table - 4.30: t-test for vocational prestige scores of RLCB and ULCB of Ao tribe

Group	N	M	SD	t	Remarks
RLCB	9	5.21	2.10	.38	NS
ULCB	35	5.48	1.86		

Results

Table 4.30 shows that RLCB had a prestige score mean of 5.21 with a SD of 2.10 while ULCB had a prestige score mean of 5.48 with a SD of 1.86. The computed t-value amounted to .38 which was not significant at .05 level. Hence, on the basis of the computation, the thirtieth hypothesis was retained.

The finding reveals that both RLCB and ULCB prefer for the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 31

"No significant difference exists in the means of vocational prestige scores between Rural and Urban High Creative Girls (RHCG/UHCG) of Ao tribe."

The significance of difference between the means of vocational prestige scores belonging to RHCG and UHCG of Ao tribe relating to their vocational preferences is computed as shown in Table 4.35.

Table - 4.31: t-test for RHCG and UHCG of Ao tribe

Group	N	M	SD	t	Remarks
RHCG	26	4.63	1.37	.76	NS
UHCG	30	5.08	1.70		

Results

Table 4.31 shows that RHCG had a prestige score mean of 4.63 with a SD of 1.37 while UHCG had a prestige score mean of 5.08 with a SD of 1.70. The computed t-value amounted to .76 which was not significant at .05 level. Hence, on the basis of the computation, the thirtyfirst hypothesis was retained.

The finding reveals that both RHCG and UHCG of Ao tribe prefer the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 32

"No significant difference exists in the means of vocational prestige scores between Rural and Urban Low Creative Girls (RLCG/ULCG) of Ao tribe."

The significance of difference between the means of vocational prestige scores belonging to RLCG and ULCG of Ao tribe relating to their vocational preferences, is computed as shown in Table 4.36.

Table 4.32: t-test for RLCG and ULCG of Ao tribe

Group	N	M	SD	t	Remarks
RLCG	38	5.51	1.84	.17	NS
ULCG	18	6.04	2.06		

Results

Table 4.32 shows that RLCG had a prestige score mean of 5.51 with a SD of 1.84 while ULCG had a prestige score mean of 6.04 with a SD of 2.06. The computed t-value amounted to .17 which was not significant at .05 level. Hence, on the basis of the computation, the thirtysecond hypothesis was retained.

The finding reveals that both RLCG and ULCG of Ao tribe prefer for the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 33

"No significant difference exists in the means of vocational prestige between Rural and Urban High Creative Boys (RHCb/UHCb) of Angami tribe."

The significance of difference between the means of vocational prestige scores belonging to RHCb and UHCb of Angami tribe relating to their vocational preferences, is computed as shown in Table 4.37.

Table - 4.33: t-test for RHCb and UHCb of Angami tribe

Group	N	M	SD	t	Remarks
RHCb	16	4.94	2.09	1.03	NS
UHCb	21	5.62	1.91		

Results

Table 4.33 shows that RHCb had a prestige score mean of 4.94 with a SD of 2.09 while UHCb had a prestige score mean of 5.62 with a SD of 4.94. The computed t-value amounted to 1.03 which was not significant at .05 level. Hence, on the basis of the computation, the thirtythird hypothesis was retained.

The finding reveals that both RHCb and UHCb of Angami tribe prefer for the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 34

"No significant difference exists in the means of vocational prestige scores between Rural and Urban Low Creative Boys (RLCB/ULCB) of Angami tribe."

The significance of the difference between the means of vocational prestige scores belonging to RLCB and ULCB of Angami tribe relating to their vocational preferences, is computed as shown in Table 4.34.

Table 4.34: t-test for RLCB and ULCB of Angami tribe

Group	N	M	SD	t	Remarks
RLCB	25	4.86	1.86	1.25	NS
ULCB	10	5.75	2.03		

Results

Table 4.34 shows that RLCB had a prestige score mean of 4.86 with a SD of 1.86 while ULCB had a prestige score mean of 5.75 with a SD of 2.03. The computed t-value amounted to 1.25 which was not significant at .05 level. Hence, on the basis of the computation, the thirtyfourth hypothesis was retained.

The finding reveals that both RLCB and ULCB of Angami tribe prefer for the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 35

"No significant difference exists in the means of vocational prestige scores between Rural and Urban High Creative Girls (RHCG/UHCG) of Angami tribe."

The significance of difference between the means of vocational prestige scores belonging to RHCG and UHCG of Angami tribe relating to their vocational preferences, is computed as shown in table 4.39.

Table - 4.35: t-test for RHCG and UHCG of Angami tribe.

Group	N	M	SD	t	Remarks
RHCG	13	5.81	1.90	1.44	NS
UHCG	10	4.70	1.75		

Results

Table 4.35 shows that RHCG had a prestige score mean of 5.81 with a SD of 1.90 while UHCG had a prestige score mean of 4.70 with a SD of 1.75. The computed t-value amounted to 1.44 which was not significant at .05 level. Hence, on the basis of computation, the thirtyfifth hypothesis was retained.

The finding reveals that both RHCG and UHCG of Angami tribe prefer for the kind of vocations having more or less equal prestige status in Naga culture.

Hypothesis 36

"No significant difference exists in the means of vocational prestige scores between Rural and Urban Low Creative Girls (RLCG/ULCG) of Angami tribe."

The significance of difference between the means of vocational prestige scores belonging to RLCG and ULCG of Angami tribe relating to their vocational preferences, is computed as shown in Table 4.36.

Table - 3.36: t-test for RLCG and ULCG of Angami tribe.

Group	N	M	SD	t	Remarks
RLCG	20	7.08	1.69	2.34	*
ULCG	5	5.14	1.53		

Results

Table 4.36 shows that RLCG had a prestige score mean of 7.08 with a SD of 1.69 while ULCG had a prestige score mean of 5.14 with a SD of 1.53. The computed t-value amounted to 2.34 which was significant at .05 level. Hence, on the basis of the computation, the thirtysixth hypothesis was rejected.

The finding reveals that ULCG prefer for more prestigious vocations to their counterparts RLCG.

Discussion

The findings of some of the major groups are further discussed as following.

1. The finding related to creative thinking of the two tribes (represented by pupils) reveals that there was no significant difference between Ao and Angami tribes in their levels of creative thinking. However, it must be noted that the mean score of Angamis ($M = 268.68$) is higher than the mean score of Aos ($M = 263.03$) which seems to have an important bearing on the subsequent findings related to different creative groups of the two tribes.

2. Statistical significant difference was found between Ao and Angami HCB in their levels of creative thinking where Angami HCB showed their superiority over their counterparts Ao HCB. The same was found true in the case of HCG too where Angami HCG showed superiority over their counterparts Ao HCG. The main reason of the differences (significant at .01 level) in both the cases (boys as well as girls) may be because of the differences found between the two districts in terms of school facilities, number of good private schools, heterogeneous classroom population structure, number of good teachers, better management systems etc. which were found more in Kohima district schools than found in Mokokchung district schools.

Kohima, being the capital of the State, had a cosmopolitan population structure. People belong to different cultural backgrounds residing in the district specially in town areas, are responsible for having a more heterogeneous type of classroom structure in the schools of the district than Mokokchung district has. Such atmosphere in the school gives a good opportunity to the pupils to learn the differences of each other in a creative manner. Besides, there were more number of good private schools in the district with more number of good teachers and better facilities than found in Mokokchung district. It is also a generally known tendency among the teachers serving in the hill states that as far as possible they want to work in a school which have better facilities, easy transportation and located in the exterior part of the state. For that matter, Mokokchung is an interior district as far as transportation is concerned. Hence, most of the teachers (including good teachers) seem to be attracted to work in a place like Kohima than to work at Mokokchung.

However, it may also be noted that the main reason for the significance of difference between Ao and Angami Low Creative pupils (LCB/LCG) where Ao LC pupils showed superiority over their Angami counterparts, may be because many Angami pupils were found attending classes by coming from the villages. This is specially seen in the Urban (town)

area schools. Pupils from the villages would come with ration etc., and stay in rent or relatives houses and attend classes during the week days and go back to the villages to collect their needs in the weekends. Even though they studied in town schools, they more or less still continue to stay in a village environment. Most of them, no doubt want to stay and study in the towns but due to certain constraints many pupils could not afford to do that. In this way, town's good facilities, teachers, managements or school environment etc., do not have much impact on them as they continue their studies in an environment which is neither of the town nor of the village. Hence, distribution of scores among Angami pupils was found more uneven (heterogeneous) than found among the Ao pupils. Again this sporadic distribution of scores was found more obvious among the Angami LCB/LCG resulting into giving lower averages. But among the Ao LCB/LCG the score distribution was found more or less normal giving into reasonable high averages. That is the reason why Ao LCB/LCG means were found significantly (.01 level) higher than the means of their counterparts Angami LCB/LCG.

3. The finding related to schools show that there is significant difference (.01) in the level of creative thinking between Private and Government school pupils. This finding has proved true the apparent differences seen in the general

preformance of pupils and management systems between the two types of schools in Nagaland. At present, Government managed schools in the state are faced with the problem of providing quality education whereas private schools are doing better (as seen from annual exams. results).

Even though there is no difference in the levels of creative thinking between Private and Aided school pupils, it must be noted that the mean of the former ($M = 276.03$) is higher than the latter's ($M = 261.83$). This may be due to the difference existed in the management systems between the two schools (Aided school is a semi-government managed school).

No significant difference was found between Aided and Government school pupils in their level of creative thinking. This may be because of the two schools having more or less a similar type of management system. However, it can still be noted that Aided school mean ($M = 261.83$) is higher than the Government school mean ($M = 257.48$). From these findings, one thing is very clear that the type of management found in the schools of Nagaland plays a vital role in maintaining quality education, and hence, in promoting creative thinking of pupils. Thus not suprisingly, Private schools, mostly run by Christian organisations (Private bodies) in the state are found having better management systems and produced better pupils.

4. The finding related to location and creative thinking reveals that there is no significant difference between Rural and Urban pupils (irrespective of tribes) in their levels of creative thinking. However, urban pupils mean ($M = 270.89$) is higher than the Rural pupils' mean ($M = 259.95$). The finding still goes with the expectation that urban pupils' performance would be better than the rural pupils' even though the difference is not statistically significant. This finding coincided with the findings of Aaron, Malatesha and Marihal (1969) and Sehgal (1978) where they reported that rural and urban pupils have no significant difference in their levels of creative thinking.

5. The finding related to sex and creative thinking reveals that there is no significant difference between boys and girls in their levels of creative thinking. This finding shows that sex difference does not affect much the creative thinking of tribal boys and girls belonging to Ao and Angami tribes. However, it may be noted that boys mean ($M = 266.38$) is higher than the girls mean ($M = 263.91$). This finding may be considered as in tune with the findings of Raina (1970), Helson (1970), Torrance and Phillips (1971), Klauss (1972), Ward and Cox (1974), Gakhar (1979) and Gupta and Pandey (1980) where they have reported of 'no significant difference between boys and girls in their verbal and non-verbal creative thinking.'

6. But in case of vocational prestige score means between HC and LC pupils (irrespective of tribes), the difference was found significant at .01 level. This shows that HC pupils prefer for more prestigious or high prestige ranking vocations than their counterparts LC pupils. This finding has an agreement with the findings of Byers (1945) and Deeg and Paterson (1947) where they have reported that prestige status of the occupation concerned was one of the most important factors that pulls individuals towards better occupational choice.

7. However, no significant difference was found in the prestige score means belonging to various creative groups (HCB, HCG, LCB, LCG) of Ao and Angami tribes. This unique finding shows that all the creative groups (irrespective of High or Low) prefer for the kind of vocations having more or less equal prestige status or falling under the same prestige categories (High, Avg. or Low). This may be because pupils of the two tribes are equally well informed about their future career preferences. Another reason may be because the word 'preference' itself is a word connected with interest or desire which seems to have no limit or strong reality imposition on the part of the person who prefers a particular vocation. In other words, in case of preference, a person can prefer any vocation he/she wants without bothering much about whether he/she can really get it or has the capacity

to handle it (or not). This finding is indirectly in agreement with the finding of Jagdishchand (1985) where he reported that 'no significant difference was found between Ao and Angami pupils in their vocational preferences (although the study was not with creative pupils).'

4.2.0. Qualitative Analysis of Vocational Preferences of Pupils

In this section, an attempt has been made to analyse and interpret the pattern of vocational preferences between HC and LC pupils and differences if any, in their reasons for preferring a vocation from the 'reason of preference' given by them.

4.2.1. Profile of Vocational Preferences

In order to find out the vocational preferences of pupils, a list of 208 vocations was first supplied to them. They were asked to select one vocation out of the list which they wish to take up in their future career pursuance. All the 320 (sample) pupils marked 88 vocations altogether out of the list. Both Ao and Angami pupils chose 66 and 57 vocations respectively out of the 88 vocations. The pattern of preferences given in percentages are as follows:

	High prestige	Average prestige	Low prestige	Total
Ao	13	70	17	100
Angami	16	65	19	100

More details about the pattern of vocational preferences of HC and LC Ao and Angami pupils, is given in Table 4.37.

Table - 4.37: Patterns of vocational preferences (in percentage) of HC and LC pupils

Nature of groups		High	Average	Low	
Ao	HC	Boys	37	19	14
		Girls	24	28	7
	LC	Boys	22	19	29
		Girls	17	34	50
Angami	HC	Boys	39	22	24
		Girls	25	24	6
	LC	Boys	24	28	41
		Girls	12	26	29

Analysis of Table 4.37 shows that HCB of Ao and Angami tribes have more or less equal pattern of vocational preferences. In the same way HCG of the two tribes also have almost a similar pattern of vocational preferences. But in case of LCB, there was slight change in the pattern where most Angami LCB were found going for vocations falling under Low prestige category than their counterparts Ao LCB. However, both seem to have equal preference for the vocations belonging to High and Average prestige categories. Again, in case of LCG, more of the Ao LCG were found preferring for the vocations

falling under Low category compare to their counterparts Angami LCG. The kind of vocations belonging to the three prestige categories were given in vide Section 3.13.

Further attempt has been made to find out the vocations commonly preferred by both HC and LC tribewise, sexwise, categorywise, as shown in Table 4.38.

Table - 4.38: Commonly preferred vocations by both HC and LC pupils tribewise, sexwise, categorywise

Tribe	Group	High	Average	Low	Common	Total
Ao	HC	7	32	3	20	76
Angami	HC	7	23	4		
"	LC	6	34	8	19	84
"	LC	6	21	9		
"	HCB	6	20	2	6	51
"	HCB	5	15	3		
"	LCB	5	21	4	9	58
"	LCB	5	17	6		
"	HCG	4	17	1	8	39
"	HCG	5	11	1		
"	LCG	4	20	4	9	43
"	LCG	2	9	4		

Out of 76 vocations opted by Ao and Angami HC pupils, there were 20 vocations found common among them and 5 of them fall in High and 15 in Average categories. They would like to become Doctors, Missionaries, Engineers, Ambassadors, Lecturers etc. Out of 84 vocations preferred by Ao and Angami

LC pupils, 19 vocations were found common, of which 5 fall in High, 12 in Average and 2 in Low categories. They would like to become Missionaries, Doctors, Scientists, Engineers, Evangelists, Martial art masters, Primary teachers etc.

Out of 51 vocations preferred by both Ao and Angami High creative boys (HCB), 6 vocations were found common among them, of which 2 belong to High and 4 belong to Average categories. They would like to become Missionnaires, Doctors, Pilots, Engineers, Judges, Commandants, Authors, Geologists etc. Out of 58 vocations preferred by both Ao and Angami LCB, 9 were found common, of which 3 fall in High and 6 in Average categories. These boys would like to become Scientists, Doctors, Missionaries, Engineers, Inspector General of Police, Lecturers, Martial art masters etc.

Out of 39 vocations preferred by both Ao and Angami HCG, 8 vocations were found common among them, of which 3 fall in High and 5 in Average categories. They would like to become Missionaries, Doctors, Commissioners, Engineers, Secondary teachers, Lecturers, Nurses, Air hostesses etc. Again, out of 43 vocations preferred by both Ao and Angami LCG, 9 vocations were found common among them, of which 2 belong to High, 5 belong to Average and 2 belong to Low prestige categories. These girls would like to become Ambassadors Missionaries, Nurses, Lawyers, News-readers, Surgeons, Primary teachers, Matrons etc.

It may also be noted that out of 88 vocations preferred by 320 HC and LC pupils, 5 vocations were observed as the most preferred vocations, and 7 vocations as the least preferred vocations. The most preferred vocations were Missionary, Civil Engineer, Nurse, Lecturer and Medical Doctor. Altogether there were 32 pupils who would like to become Missionaries, 30 Engineers, 27 Nurses, 25 Lecturers and 18 Doctors in their future life. The least preferred vocations were Cloth presser, Shoe-shiner, Carpenter, Tonga-driver, Gardener, Astrologer and Farmer. Each of the vocations was preferred by one pupil only.

Interesting enough to note was that of Missionary which came out as the first most preferred vocation by both HC and LC pupils. In Nagaland, a Missionary plays a significant role in uplifting the moral and spiritual standard of people. He is a man guided by a vision of good deed for mankind. He shows love to others, sacrifices his time and effort, and devotes himself to the work of men and God. He is loved and respected by all. He is an ideal man in Naga society. These may be some of the reasons why most of the pupils, irrespective of their tribe, sex, location or creativeness would like to become a Missionary in their lives. Details are given in Table 4.39.

Table - 4.39: Rank order of most and least preferred vocations by the sample (HC and LC pupils)

Rank order	Name of vocations	HC	LC	Total
1.	Missionary	18	14	32
2.	Civil Engineer	23	7	30
3.	Nurse	8	19	27
4.	Lecturer	14	11	25
5.	Medical Doctor	13	5	18
6.	Cloth-presser	1	-	1
7.	Shoe-shiner	-	1	1
8.	Carpenter	-	1	1
9.	Tonga-driver	1	-	1
10.	Gardener	-	1	1
11.	Astrologer	1	-	1
12.	Farmer	-	1	1

4.2.2. Analysis of the Reasons behind Vocational Preferences

Vocational preference is the outcome of a process happening within an individual over a period of time. In fact, a series of factors such as natural endowments, educational background, societal conditions, influence of others, nature and type of vocations, their earning capacity, prestige status, psychological satisfaction etc. involve in the process of choosing a vocation.

In order to investigate into the reasons behind the vocational preferences of pupils (High creative and Low creative), a list of 19 possible reasons was attached to the list of vocations supplied to them (vide caption 3.8.2). The pupils were asked to tick mark 3 reasons out of the 19 which they considered were responsible for their preferring of a particular vocation. The data on reasons behind vocational choice are given in Tables 4.40 and 4.41.

Discussion

Table 4.41 shows that the vocational preference of Ao HCB were mostly influenced by considerations implicit in reasons vide serial numbers 19, 1, 5, 17 and 10. Reasons proper for selecting vocations in order of preference being "I will be doing my duty for the nation or society being in this vocation", "I like the work involved in this vocation",

Table - 4.40: Data showing the Reasons behind vocational preferences HC and LC pupils tribewise and sexwise (N = 320)

Reasons Sl. Nos.	Ao				Angami				Total	
	HCB	HCG	LCB	LCG	HCB	HCG	LCB	LCG	HC	LC
1.	22	26	20	20	15	9	10	10	72	60
2.	3	2	3	-	3	2	5	-	10	8
3.	1	5	4	8	2	2	3	3	10	18
4.	4	13	3	4	5	1	3	2	23	12
5.	16	14	10	18	6	4	7	4	40	39
6.	3	2	6	3	4	1	2	2	10	13
7.	5	8	7	19	4	8	5	8	25	39
8.	2	3	7	6	4	-	5	2	9	20
9.	1	1	-	4	2	1	-	1	5	5
10.	11	8	4	15	9	2	10	5	30	34
11.	2	4	6	3	2	-	2	1	8	12
12.	2	2	4	2	3	1	8	8	8	22
13.	3	8	4	10	4	9	4	9	24	27
14.	3	7	2	6	6	2	3	1	18	12
15.	4	3	9	5	9	4	3	2	2	19
16.	3	2	3	3	2	1	1	-	8	7
17.	13	18	7	11	10	7	8	3	48	29
18.	6	10	8	6	3	-	7	2	19	23
19.	28	32	25	25	18	15	19	12	93	81
Total	132	168	132	168	111	69	105	75	480	480
N	44	56	44	56	37	23	35	25	160	160

Table - 4.41: Data showing the most opted reasons for selecting vocations in order of preference

Rank	Ao				Angami			
	HCB	HCG	LCB	LCG	HCB	HCG	LCB	LCG
1.	19*	19	19	19	19	19	19	19
2.	1	1	1	1	1	13	10	1
3.	5	17	5	7	17	1	1	13
4.	17	5	15	5	10	7	13	7
5.	10	4	18	17	15	17	17	12

* indicates the actual serial number in the list.

"My father says that this vocation suits me", "The subject which I have selected in my course will be useful in this vocation", and "This vocation enjoys the highest prestige in our society". It is therefore, appeared that the Ao HCB were found to have service to nation as the most important single factor in preferring a career in their future life. The second most important consideration for preferring a particular vocation by Ao HCB was that they liked the work involved in the vocation. The third reason for selecting vocation in order of preference by HCB was that their fathers'

aspirations for their children's future career. The fourth and fifth reasons in order of preference pertained to favourite subjects that they select in their courses of study and the prestige enjoyed by the vocation in Naga society.

The data on Ao HCG revealed that they shared with the boys counterparts reasons behind their vocational preferences in as much as they, like HCB, guided by national service as most important and work involved in the vocation as the second most important factors. Again, Ao jHCG were seen to share with Ao HCB reasons for preferring vocation of their choice vide serial number 17 and 5, while the reason vide serial number 17 indicated that the usefulness of special subjects selected at school in preferring the vocation and reason number 5 reflected the selection of vocation in terms of parental aspirations for their children's future career. Ao HCG, unlike their boys counterparts gave reason number 4 i.e. "I jpossess the ability to do the work involved in this vocation", as the fifth most important reason behind preferring a vocation. This is quite a revealing finding in as much as Ao HCG were found to be conscious of their potentialities in selecting a career in their future life. However, more than 10 (10%) Ao HCG out of 56 revealed that they would mostly go by their concern for the society's welfare in preferring their future career.

The data on Ao LCB indicated that they share with their counterparts HCB and HCG reasons behind preferring their favourite vocations vide serial number 19, 1 and 5. Just as seen in the case of HCG, HCG, the reason number 19 which was connected with service to society, number 1, nature of work involved and number 5, father's aspiration for his children's career were found in the same preference order as the first three reasons for preferring a vocation by Ao LCB. The fourth reason in order of preference by Ao LCB was that they liked the atmosphere of how people work in a particular vocation i.e. the kind of engagement people have in the vocation. The fifth reason for preferring a vocation by Ao LCB was that they use to get good marks in the subjects which were necessary to be successful in the vocation. However, the most opted reason by Ao LCB, like their counterparts HCB and HCG, in preferring a vocation was that of 'service to society (nation)'.

Ao LCG, like their counterparts Ao HCB and HCG, were found giving reason numbers 19, 1, 5 and 17 as four important reasons for preferring a vocation of their future career. These reasons were related to service to society (nation), nature of work involved in the vocation, father's aspirations for children and usefulness of special subjects selected at school courses of study. The fifth most important

reason for preferring a vocation as future career by Ao LCG, was that "My mother wishes that I enter this vocation."

However, in the case of Ao LCG too, reason number 19 was found as the most opted reason in preferring a vocation as has been found in the cases of three creative groups of Ao pupils.

The reasons behind vocational preferences as given by Angami HCB were mostly influenced in order of preference by the reasons stated as "I will be doing my duty for the nation or society being in this vocation", "I like the work involved in this vocation", "The subject which I have selected in my course will be useful in this vocation", "The vocation enjoys the highest prestige in our society" and "I like the atmosphere in which people are engaged in this vocation". It may be seen that like Ao pupils, 'service to nation (society)' was mentioned to be the most opted reason for preferring a particular vocation in case of Angami HCB too. The nature of work involved in the vocation was the second important reason in determining the vocational preference. The specially selected subjects usefulness, the prestige status enjoyed by the vocation were the third, fourth and fifth important reasons governing the vocational preferences of Angami HCB. Out of 37 Angami HCB, 6 of them revealed that they mostly go by the sense of service to nation (society) in choosing their vocation for future life.

The data on Angami HCG revealed that they also share with their HCB counterparts the reasons vide serial number 19, 1 and 17 behind their vocational preference. 'Service to nation, nature of the work involved in the vocation and special subjects offered at school courses', were three important reasons behind their vocational preferences which were found similar to HCB. The other two important reasons governing their vocational preferences pertained to "My relatives have advised me to select this vocation" and "My mother wishes that I enter this vocation". It may be noted that unlike the cases of other creative groups mentioned earlier where reasons vide serial number 19 and 1 were ranked first and second have been seen changed in the case of Angami HCG where reason vide number 13 occupied the second most important factor of preferring a vocation. This reason has reflected the preferring of vocation on the line suggested by mother's advice (wish).

As regards to data relating to vocational preferences of Angami LCG, it was found that they have great similarity specially with their counterpart Angami HCG, in their opting of reasons behind the selection of a vocation. The first most attracted reason being 'service to nation' Angami LCB shared with other groups in their preferring for a vocation. Here also a change could be seen in the order of preference

as reason vide number 10 became the second most opted reason as reason vide number 1 took the third place. Hence the second important consideration of preferring a vocation by Angami LCB was that 'the particular vocation enjoyed highest prestige status in Naga society'. Nature of the work involved in the vocation, 'relatives advice' and special subjects selected at school courses of study were found as third, fourth and fifth reasons behind the preference of a vocation by Angami LCB. Out of 35 Angami LCB, 6 of them showed that their preferring of a vocation was guided by their consciousness to serve their nation (society).

Further, the data on Angami LCG revealed that they shared as much with Ao High and Low creative pupils as well as Angami HCB in reasons vide number 19 and 1, as the first two most important reasons behind their preferring for a particular vocation. The third and fourth reasons being found similar to the case of Angami HCG, pertained to 'relatives advice in choosing the vocation' and 'mother's wish to enter the vocation' as the important factors behind preferring a vocation for future career. Unlike any other groups, Angami LCG opted reason vide number 12 as the fifth most important reason behind their preferring for a vocation for their future career. This reason which states "My teacher has encouraged that I should choose this vocation" has reflected that Angami

LCG also choose a vocation in consideration of the suggestions given by their teachers.

One very important similarity which deserves a special mention was that all the eight creative groups belonging to the two tribes were found to be selecting reason vide number 19 as the first most important factor for preferring a vocation of their future career. According to this reason, all the High creative and Low creative pupils kept a clear understanding of serving the nation or society through the vocations they were preferring for their future. Another important phenomenon worth noticing was that of reason vide number 1 which was found selecting as the second most opted reason behind vocational preference by most of the groups except HCG and LCB of Angami tribe. Out of 19 reasons, 11 reasons were found playing significant role in the vocational preferences of HC and LC pupils of Ao and Angami tribes.

It may be stated that the present study's findings related to vocational preferences of HC and LC pupils came out fairly in tune with the findings of the studies conducted among the tribals by Tali (1982), Parihat (1982), Rawat (1982), Aithuama (1982), Chakravorty (1983), Jagdishchand (1985), Ramnghinglova (1986), Sungoh (1987) and Vipralho (1987), although these studies were done with non-creative pupils. These researchers have reported that majority of the pupils

would like to become Doctors, Engineers, Administrators, Nurses, Teachers, Police Officers, Scientists, Technicians etc. These were also some of the vocations preferred by HC and LC pupils in the present study.

Conclusion

The testing of hypothesis relating to creative thinking of pupils showed that Angami High Creative (HC) pupils level of creative thinking was higher than their counterparts Ao High creative pupils. But the trend was found reversed in case of Low creative pupils were Ao LC pupils showed up higher in their level of creative thinking than their Angami LC counterparts. In general, the reason for the difference in the levels of creative thinking between the two groups (Ao and Angami) may be attributed to the differences found in the two districts in terms of facilities, population structure, teachers (teaching methods), school managements etc. which can have positive as well as negative impact on pupils performances in changing circumstances.

However, in case of vocational preferences, no significant difference was found in most of the creative groups except in the cases of High Creative (HC) and Low Creative (LC) pupils in general (irrespective of tribes) and RLCG and ULCG of Angami tribe (vide Tables 4.22 and 4.36).

The following chapter is devoted to conclusions, educational implications, suggestions for improvement of creative thinking and vocational preferences of pupils and suggestions for further research.

CHAPTER V

CONCLUSIONS, EDUCATIONAL IMPLICATIONS AND SUGGESTIONS

CONCLUSIONS, EDUCATIONAL IMPLICATIONS AND SUGGESTIONS

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CONCLUSIONS, EDUCATIONAL IMPLICATIONS AND SUGGESTIONS

5.0.0. Introduction

In the previous chapter, thirtysix hypotheses relating to creative thinking and vocational preferences were tested and results were communicated. The current chapter is devoted to the gleanings of the findings on creative thinking and vocational preferences of pupils followed by the Educational Implications, suggestions for improvement of creative thinking and vocational preferences of tribal pupils and finally suggestions for further research.

5.1.0. Conclusions

A total picture of the findings of the study is given in Table 5.1 (A & B).

Table - 5.1.(A): Findings relating to creative thinking

(i) Between the two tribes

Nature of Groups	N	M	SD	t	Remarks
1. Ao	200	263.03	48.55	.81	NS
Angami	120	268.68	66.49		
2. Ao HC	100	310.15	15.28	8.22	**
Angami HC	60	333.98	19.13		

Table - 5.1(A) (Contd.)

Nature of Groups	N	M	SD	t	Remarks
3. Ao LC	100	215.91	6.28	13.80	**
Angami LC	60	203.37	5.09		
4. Ao HCB	44	305.36	14.69	7.96	**
Angami HCB	37	338.21	21.23		
5. Ao LCB	44	216.9	5.95	10.90	**
Angami LCB	35	203.57	4.93		
6. Ao HCG	56	313.91	14.67	4.07	**
Angami HCG	23	327.09	12.34		
7. Ao LCG	56	215.13	6.41	8.85	**
Angami LCG	25	203.08	5.29		
8. Ao RHC	47	312.94	15.41	5.43	**
Angami RHC	31	333.72	17.20		
9. Ao RLC	47	215.74	5.49	11.44	**
Angami RLC	45	203.24	4.99		
10. Ao UHC	53	307.68	14.73	6.11	**
Angami UHC	29	334.23	20.73		
11. Ao ULC	53	216.06	6.90	7.36	**
Angami ULC	15	203.73	5.35		

(ii) Within the tribes**(a) Ao Tribe**

12. ME (HC)	82	310.33	15.54	.27	NS
LE (HC)	18	309.32	14.03		

Table - 5.1(A) (Contd.)

Nature of Groups	N	M	SD	t	Remarks
13. ME (LC)	55	216.55	5.94	1.15	NS
ILL (LC)	20	214.80	5.81		
(b) Angami tribe					
14. ME (HC)	45	331.87	18.46	1.46	NS
LE (HC)	15	340.33	19.67		
15. ME (LC)	29	203.55	5.25	.09	NS
ILL (LC)	10	202.90	3.53		
(iii) Within the variables					
(a) School					
16. Aided school	48	261.83	62.08	.44	NS
Govt. School	151	257.48	53.57		
17. Pvt. School	121	276.03	55.8	2.79	**
Govt. (S)	151	257.48	53.57		
18. Pvt. (S)	121	276.03	55.08	1.38	NS
Aided (S)	48	261.83	62.08		
(b) Location					
19. Rural	168	259.95	57.15	1.75	NS
Urban	152	270.89	54.46		
(c) Sex					
20. Boys	160	266.38	57.69	.39	NS
Girls	160	263.91	54.55		

**Table - 5.1(B): Findings relating to vocational preferences
(based on prestige scores)**

(i) Between the two tribes

Nature of Groups	N	M	SD	t	Remarks
21. Ao	200	5.25	1.82		
Angami	120	5.55	2.02	1.33	NS
22. HC	160	5.08	1.79		
LC	160	5.64	1.97	2.67	**
23. Ao HC	100	4.93	1.64		
Angami HC	60	5.33	1.98	1.32	NS
24. Ao LC	100	5.27	1.93		
Angami LC	60	5.77	2.03	.61	NS
25. Ao HCB	44	5.01	1.72		
Angami HCB	37	5.33	2.02	.76	NS
26. Ao LCB	44	5.42	1.91		
Angami LCB	35	5.12	1.92	.69	NS
27. Ao HCG	56	4.87	1.57		
Angami HCG	23	5.33	1.92	1.02	NS
28. Ao LCG	56	5.68	1.93		
Angami LCG	25	6.69	1.83	2.26	*

(ii) Within the tribes

(a) Ao tribe

29. RHCB	21	5.35	1.93		
UHCB	23	4.70	1.43	1.30	NS

Table - 5.1(B) (Contd.)

Nature of Groups	N	M	SD	t	Remarks
30. RLCB	9	5.21	2.10	.38	NS
ULCB	35	5.48	1.86		
31. RHCG	26	4.63	1.37	.76	NS
UHCG	30	5.08	1.70		
32. RLCC	38	5.51	1.84	.71	NS
ULCC	18	6.04	2.06		
(b) Angami tribe					
33. RHCB	16	4.96	2.9	1.03	NS
UHCB	21	5.62	1.91		
34. RLCB	25	4.86	1.86	1.25	NS
ULCB	10	5.75	2.03		
35. RHCG	13	5.81	1.90	1.44	NS
UHCG	10	4.70	1.75		
36. RLCC	20	7.08	1.69	2.34	*
ULCC	5	5.14	1.53		

* Significant at .05 level.

** Significant at .01 level.

NS = Not significant.

A. Creative Thinking

1. There was no significant difference between Ao and Angami tribes in their levels of creative thinking (vide table 4.1).
2. Angami HC pupils level of creative thinking was found significantly higher than that of Ao HC pupils (vide table 4.2).
3. Ao LC pupils level of creative thinking was found significantly higher than that of Angami LC pupils (vide table 4.3).
4. Angami HCB and HCG were found superior to Ao HCB and HCG in their levels of creative thinking (vide table 4.4 and 6).
5. Ao LCB and LCG were found superior to Angami LCB and LCG in their levels of creative thinking (vide tables 4.5 and 7).
6. Angami RHC and UHC pupils were found significantly higher in their levels of creative thinking than that of Ao RHC and UHC pupils (vide tables 4.8 and 10).
7. Ao RLC and ULC pupils' levels of creative thinking were found significantly higher than that of Angami RLC and ULC pupils (vide tables 4.9 and 11).
8. Varied parental educational background did not have significant influence on the level of creative thinking of their children (vide tables 4.12, 13, 14 and 15).

9. There was no significant difference between Aided and Government or Aided and Private school pupils in their levels of creative thinking (vide tables 4.16 and 18).
10. Private school pupils were found significantly superior to that of Government school pupils (vide table 4.17).
11. Location and Sex differences did not affect significantly the level of creative thinking of Ao and Angami pupils (vide table 4.20).

B. Vocational Preferences

12. There was no significant difference in preferring for prestigious vocations between Ao and Angami tribes (vide table 4.21).
13. HC pupils (in general) preferred for more prestigious vocations than that of LC pupils (vide table 4.22).
14. There was no significant difference in preferring for prestigious vocations between Ao and Angami HC, LC, HCB, LCB and LCG (vide tables 4.23, 24, 25, 26 and 27).
15. Ao LCG preferred for more prestigious vocations than that of Angami LCG (vide table 4.28).
16. There was no significant difference in preferring for prestigious vocations between Rural and Urban HC and LC pupils of Ao tribe (vide tables 4.29, 30, 31 and 32).
17. There was no significant difference in preferring for prestigious vocations between Rural and Urban HC and LC boys of Angami tribe (vide tables 4.33 and 34).

18. There was no significant difference in preferring for prestigious vocations between Rural and Urban HC Girls of Angami tribe (vide table 4.35).
19. Angami ULCG preferred for more prestigious vocations than their counterparts RLCG (vide table 4.36).

5.1.1. Major Conclusions

The following are the major conclusions drawn from the general findings.

5.1.1.1. Creative Thinking

1. It was found that in general, there was no statistically significant difference between Ao and Angami tribes (represented by pupils in their levels of creative thinking although the mean score of Angamis ($M = 268.68$) was higher than the mean score of Aos ($M = 263.03$).
2. Angami HC pupils were found significantly higher (0.01 level) in their levels of creative thinking than their counterparts Ao HC pupils. However, in case of LC group, Ao LC pupils were found significantly higher (.01 level) in their levels of creative thinking than their counterparts Angami LC pupils.
3. Angami HCB and HCG were found superior to their counterparts Ao HCB and HCG in their levels of creative thinking. However, reverse to the trend, Ao LCB and LCG were found superior to their counterparts Angami LCB and LCG in their levels of creative thinking.

4. Angami RHC and UHC pupils were found significantly higher (.01 level) in their levels of creative thinking than their counterparts Ao RHC and UCH pupils. But the trend was found reversed again in case of LC pupils where Ao RLC and ULC pupils were found superior to Angami RLC and ULC pupils in their levels of creative thinking.
5. It was also found that varied educational background of tribal parents did not have significant influence on the creative thinking of their children.
6. Significant difference (.01 level) was found between Private and Government School pupils in their levels of creative thinking where private school pupils showed superiority over their counterparts Government school pupils.
7. Location (Rural and Urban) and Sex (Boys and Girls) differences were found not playing significant parts in the creative thinking of pupils of Ao and Angami tribes.

5.1.1.2. Vocational Preferences

1. HC tribal pupils (irrespective of tribes) in general were found preferring for more prestigious vocations to the LC pupils.
2. Almost all the various creative groups belonging to Ao and Angami tribes were found preferring for the kind of vocations having more or less equal prestige status

or belonging to the same prestige categories as their future careers.

3. A great deal of similarity could be seen in the vocational preferences between HC and LC boys of both Ao and Angami tribes. These boys would like to become Missionaries, Doctors, Engineers, Scientists, Martial art masters etc.
4. Most of the girls irrespective of their creative thinking or tribe would like to become Missionaries, Lecturers, Nurses, Ambassadors, Lawyers, News readers, Singers, Air hostesses etc.
5. One of the most important findings of the present study was that a vast majority of pupils irrespective of their creative thinking, sex, location or tribe would like to become Missionaries in their future lives. Hence, Missionary was found as the most attractive vocation to both HC and LC pupils. It was also found as one of the most prestigious vocations in Naga society (falling in High prestige category).
6. The single-most important reason behind the preference of a vocation opted by all the groups irrespective of their creative thinking, sex, location or tribe was reason vide number 19, which reads, "I will be doing my duty for the society or nation being in this vocation." This finding has reflected the fact that many pupils

in Nagaland started thinking about the welfare of their tribe, society or nation by the time they enter the adolescent period, and they want to do something good for their tribe or society through the vocations they would like to take up in their lives.

5.2.0. Educational Implications

The educational implications of the study are as follows:

5.2.1. Creative Thinking

5.2.1.1. In the present study it was found that there was no statistical significant difference between Aos and Angamis in their levels of creative thinking. It implies that the thinking pattern among Aos and Angamis is more or less similar. There are more similarities between them as Nagas than as members of Ao tribe and Angami tribe.

5.2.1.2. Angami High Creative pupils were found significantly higher in their level of creative thinking than Ao High Creative pupils. It implies that the Angami pupils are taught in a stimulating environment with the better educational facilities. If the school facilities are significantly improved in Mokokchung district the creative thinking level of Ao also can be improved significantly. The Low Creative Ao pupils were found to be significantly higher in their levels of creative thinking than the Angami Low Creative pupils.

It implies that the Aos are significantly advanced in their thinking power. If quality education is provided, Aos might even excel the Angamis in the long run.

5.2.1.3. It was also found that varied educational background of tribal parents did not have significant influence on the creative thinking of their children. It implies that the tribal pupils are highly community conscious and they think as community than as individuals since they are emotionally attached as a tribe. So educational programmes and developmental programmes should cater to community development rather than individual development.

5.2.1.4. It was found that the Private school tribal pupils are superior in their levels of creative thinking to the Government school tribal pupils. It implies that the environments in the Private schools are more fertile for creative thinking than either Government school or Aided school environments. Hence, Government and Private schools need a lot of qualitative improvement in this regard.

5.2.1.5. Location and Sex differences were found not playing significant role in the creative thinking of Ao and Angami pupils. It implies that most of the Aos and Angamis live as tribal village communities and most of the works are done by both sexes together as a community and traditional divi-

sion of labour seen in non-tribal communities is not seen among the Nagas.

5.2.2. Vocational Preferences

5.2.2.1. HC tribals were found preferring for more prestigious vocations than the LC tribals. It implies that modern education has developed thinking power in some of the Nagas and they want to be different from the other community members. That is why they preferred high prestige vocations.

5.2.2.2. The HC pupils and LC pupils were found to have patterns of vocational preferences in consonance with their level of thinking capacity.

5.2.2.3. Missionary was found as the most preferred vocations by both HC and LC Ao and Angami pupils. In Nagaland, nearly 90% of the tribals are Christians. Their faith has tremendously influenced them. This is indicated by their preference for Missionary as a career. A spiritual leader is more important than anybody in a tribal situation.

5.3.0. Suggestions

In this section, two types of suggestions are given - one for enhancement of creative thinking and vocational preferences and another for further research.

5.3.1. Suggestions for Enhancement of Creative Thinking and Vocational Preferences

The following are some of the suggestions which would help enhance the creative thinking and vocational preferences of Naga tribal pupils.

5.3.1.1. Creative Thinking

1. The first most important thing the 'significant others' of pupils had to do in developing creative thinking of pupils is that they should let the pupils know that they (pupils) are 'creative'. It should be made clear to the pupils that such a great seed which can make them shine in their lives (like any other great men/women), is inevitably in each one of them.
2. In addition to the teaching skills employed by the teachers, the seven approaches to teaching creative thinking summarised by Gary Davis (1969) may also be helpful in developing creative thinking of tribal pupils. They are:
 - i) Providing a creative atmosphere.
 - ii) Stimulating thinking.
 - iii) Encouraging original thinking.
 - iv) Using a discovery method of teaching and learning.
 - v) Changing curricula in the direction of more creative work.
 - vi) Teaching problem-solving methods.
 - vii) Teaching systematic methods for generating new and creative combination of ideas.

3. Arrangement should be made for the application of certain techniques which are considered facilitate creative thinking such as Attribute Listing, Morphological Synthesis, Checklist, Brain-Stroming, Synectics etc. in school activities.
4. Teacher-pupil relationship should be of democratic as well as laiseze-faire type where creative freedom and timely guidance be given to the pupils.
5. Pupils unusual questions and ideas should be welcomed showing that their ideas have value.
6. Organisation of curricular and co-curricular activities like composition of poems, story writing, symposia, painting and drawing; dramatisation, humour competition, games and sports etc. should be made a part of the regular school activities.
7. A selected saying of great men should appear everyday in an easily visible place in the school under the heading: "Thought of the Day". In the same way, such other sayings may also be put up on the walls of classrooms and common rooms.

5.3.1.2. Vocational Preferences

As has been mentioned earlier, apart from pupils own efforts, their 'significant others' should also try to help them in preferring the vocations that might be best suited

and useful in their lives. The following are some of the suggestions for better vocational awareness and preferences of pupils.

1. Vocational Subjects

Introduction of SUPW and WE (work experience) to school curriculum from a reasonably early stage of education, and vocational subjects (trades) at high and higher secondary stages should be done in the schools of Nagaland under the keen supervisions of the concerned authorities.

2. Guidance Services

Guidance services specially vocational guidance, should be introduced in all the schools of Nagaland under a specially appointed officer or trained teachers. The main objectives of the programme may be:

- (i) To enable the pupils to discover information about themselves - their abilities, interests, needs, ambitions, limitations and causes.
- (ii) To provide them information about the world of work, the advantages and disadvantages of different occupations and educational courses, the qualifications required and range of opportunity available to them.
- (iii) To provide them a frame of reference in which to see themselves in relation to these educational and vocational opportunities, to orient them to the helping

agencies available to them, and to alert them to future decision-making points in their careers.

3. There should be arrangement for time to time experts' (outsiders) talk on vocations and careers in addition to the regular vocational guidance programmes in the schools.

4. Mass-Media

The present vocational guidance at school level, district level and state level through print-media and persons have limitations. But, if mass-media (TV) is used, it will supplement and enrich the work of schools. If a separate TV channel is used for educational purposes alone, then vocational guidance, educational guidance and personal guidance will get a fair treatment.

5. Teacher Training

In pre-service and in-service training of teachers at post-matric and B.A. levels, guidance and counselling should be included as one of the courses. In addition to that refresher courses also should give opportunity to help teachers to become better counsellors and guides.

6. Educated Unemployment

In Nagaland the educated unemployment is increasing every year even though special programmes for appointing qualified tribals are already a priority of the government.

The main reason for this situation is the attraction of majority of the students for Arts stream and tendency to avoid science and mathematics. Due to lack of educational guidance Arts stream is very popular and those who come out of the stream find limited opportunities for employment. Though science stream is suitable for a variety of employment opportunities most of the tribal students think that they are not capable of undergoing for science courses. This phobia for science stream continues in the whole of North East. As a result, there are large number of vacancies specially in tribal areas in vocations that required scientific skills. Hence, proper educational guidance, vocational guidance and personal guidance should be given to the students at school stage.

5.3.2. Suggestions for Further Research

The following can be some of the suggestions for further research in the related area of the present study.

1. The present study was delimited to the pupils from the two Naga tribes (Ao and Angami). There are 14 major tribes in Nagaland. It is, therefore, suggested that similar studies may be taken up on the remaining tribal pupils for the purpose to cross validating the findings of the present study.
2. In the present study no attempt was made to find out the levels of verbal and non-verbal creative thinking

of the two tribes separately. It may be worthwhile to take up a comparative study on it.

3. A comparative study between tribal and non-tribal pupils in Nagaland may be conducted with regard to the variables in question.
4. The vocational prestige scale used in the present study has been developed on a limited sample of 50 experts. The scale may be validated on a larger number of experts drawn from all the major tribes as well as non-tribals in the state of Nagaland.
5. Vocational preferences and creative thinking of tribal pupils in relation to socio-economic status may also be attempted.

Conclusion

In this final chapter, the conclusions of the study, their educational implications, suggestions for improvement and suggestions for further research have been given.

The present study has several significant contributions. Firstly, construction of a battery of verbal and non-verbal tests of creative thinking called 'Nagland Tests of Creative Thinking' (NTCT). Secondly, a 'Nagaland Vocational Prestige Scale' containing 208 vocations has been prepared on an eleven point scale. Thirdly, the High Creative and Low Creative Ao and Angami boys and girls in the high schools of Mokokchung

and Kohima districts were identified. Fourthly, vocational profile of Ao and Angami High Creative and Low Creative boys and girls and their patterns of vocational preferences have been prepared.

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APPENDIX - A

ACTIVITY-I

CONSEQUENCES TEST

Verbal

INSTRUCTIONS:

Please go through the following instructions carefully as I read them aloud to you.

1. Here is a separate Answer-Sheet in which you have been given three 'Statements' which will appear to you impossible. You have to think what would happen if such situations actually arise. Different kinds of consequences will result from each statement.
2. Give as many ideas as may come to your mind but also try to think of as many novel ideas as you possibly can. Ideas which you think no one else might have thought of. Write your responses in the space provided for.
3. You will be given 15 minutes for this ACTIVITY. After every 4 minutes you will be told the time so that you may move on to the next item in the ACTIVITY.
4. Please get your doubts clarified before you start the ACTIVITY. When I say 'TIME IS OVER' please stop writing immediately.
5. Write down the consequences to each statement as shown in the following example.

EXAMPLE:

Statement: What would you do with the money if you win 2 lakh of rupees in Nagaland lottery?

Sl.No.	Consequences-
1.	Give 10% to the church.
2.	Establish an orphanage.
3.	Go for better/higher study abroad.
4.	Buy a latest model motor-bike.

These can be some of the meaningful and unusual consequences. Likewise, you may also do for the statements given in the Answer-Sheet.

6. Please do not start until you are told to do so.

ACTIVITY—I : ANSWER SHEET OF CONSEQUENCES

KR

PLEASE FILL IN :

NAME :

SEX :

AGE :

SCHOOL :

CLASS :

DATE :

FOR EXAMINERS USE ONLY

CODE NO.

ITEM	F	X	O	C	REMARKS
1					
2					
3					
T					

(Please write only at the specified place, against the numbers)

1. STATEMENT : WHAT WOULD HAPPEN IF A SEVERE EARTHQUAKE OCCURS IN NAGALAND ?

S. No.	CONSEQUENCES	S. No.	CONSEQUENCES
1.		18.	
2.		19.	
3.		20.	
4.		21.	
5.		22.	
6.		23.	
7.		24.	
8.		25.	
9.		26.	
10.		27.	
11.		28.	
12.		29.	
13.		30.	
14.		...	
15.		...	
16.		...	
17.		...	

ACTIVITY-II

UNUSUAL USES TEST

INSTRUCTIONS:

Please go through the following instructions carefully as I read them aloud to you.

1. Here is a separate Answer-Sheet in which you have been given three commonly used things/objects in Nagaland which could be used in many different ways.
2. Write as many possible unusual and meaningful uses as you can for each of the object. You may assume the object to be of any size, shape and colour.
3. You will be given 12 minutes for this ACTIVITY. After every 3 minutes you will be told the time so that you may move on to the next item in the ACTIVITY.
4. Please get your doubts clarified before you start the ACTIVITY. When I say 'TIME IS OVER' please stop writing immediately.
5. Write down the uses of each object as shown in the following example.

EXAMPLE:

Object :	NAGA-BASKET
----------	-------------

Sl.No.	Uses-
1.	Carrying a child to the field.
2.	Covering chicken/duck etc.
3.	Use as a net for catching fish in the river.
4.	Sell for a price.

These can be some of the new and different uses. Likewise, you may also do for the objects given in the Answer-Sheet.

6. Please do not start until you are told to do so.

ACTIVITY--II : ANSWER SHEET OF UNUSUAL USES

<p><i>PLEASE FILL IN :</i></p> <p><i>NAME :</i></p> <p><i>SEX :</i></p> <p><i>AGE :</i></p> <p><i>SCHOOL :</i></p> <p><i>CLASS :</i></p> <p><i>DATE :</i></p>	<p>FOR EXAMINERS USE ONLY</p> <p>CODE NO.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">ITEM</th> <th style="width: 10%;">F</th> <th style="width: 10%;">X</th> <th style="width: 10%;">O</th> <th style="width: 10%;">C</th> <th style="width: 50%;">REMARKS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">T</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	ITEM	F	X	O	C	REMARKS	1						2						3						T					
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(Please write only at the specified place, against the numbers)

<p>1. OBJECT</p>	<p>NAGA-SPEAR</p>																																																																								
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INSTRUCTIONS:

Please go through the following instructions carefully as I read them aloud to you.

1. Here is a separate Answer-Sheet in which you have been given three pairs of objects which can be related to each other in many different ways. You have to think in how many different and new ways can they be related.
2. Write as many relationships as you can but also try to think those which are novel, that is, those which you think no one else might have thought of.
3. You will be given 15 minutes for this ACTIVITY. After every 4 minutes you will be told the time so that you may move on to the next item in the ACTIVITY.
4. Write down the relationships of each pair of objects as shown in the following example.

EXAMPLE:

Pair of Objects:

BUTTERFLY AND BIRD

Sl.No.

Relationships-

- | | | |
|---|----|---|
| I | I. | Both are afraid of man. |
| | 2. | Both do not require vehicle for travelling. |
| | 3. | Both care for their young ones. |
| | 4. | Both sleep at night. |
-

These can be some of the novel and meaningful relationships. Likewise, you may also do for the pairs of objects given in the Answer-Sheet.

5. Please get your doubts clarified before you start the ACTIVITY. When I say 'TIME IS OVER' please stop writing immediately.
6. Please do not start until you are told to do so.

ACTIVITY—III : ANSWER SHEET OF NEW RELATIONSHIPS

<p>PLEASE FILL IN :</p> <p>NAME :</p> <p>SEX :</p> <p>AGE :</p> <p>SCHOOL :</p> <p>CLASS :</p> <p>DATE :</p>	<p>FOR EXAMINERS USE ONLY</p> <hr/> <p>CODE NO.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 10%;">ITEM</th> <th style="width: 15%;">F</th> <th style="width: 15%;">X</th> <th style="width: 15%;">O</th> <th style="width: 15%;">C</th> <th style="width: 30%;">REMARKS</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">T</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	ITEM	F	X	O	C	REMARKS	1						2						3						T					
ITEM	F	X	O	C	REMARKS																										
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2																															
3																															
T																															

(Please write only at the specified place, against the numbers)

I. SCHOOL AND NAGA-HOUSE

S. No.	NEW RELATIONSHIPS	S. No.	NEW RELATIONSHIPS
1.		18.	
2.		19.	
3.		20.	
4.		21.	
5.		22.	
6.		23.	
7.		24.	
8.		25.	
9.		26.	
10.		27.	
11.		28.	
12.		29.	
13.		30.	
14.		...	
15.		...	
16.		...	
17.		...	

ACTIVITY-IV

PRODUCT IMPROVEMENT TEST

INSTRUCTIONS:

Please go through the following instructions carefully as I read them aloud to you.

1. Here is a separate Answer-Sheet in which you have been given a simple model of a Doll. You have to imagine in what ways you can transform this simple model into an interesting and novel Doll for children to play with.
2. You may think of adding any number of materials or things in order to make the Doll really interesting and fascinating for children. Do not worry about the cost of the new materials or things that you would like to use to make the Doll look better and attractive for children.
3. Write all the ideas that come to your mind in a serial order in the space provided for.
4. You will be given 6 minutes for this ACTIVITY. After every 2 minutes you will be told the time so that you may be aware of the time passing.
5. Please get your doubts clarified before you start the ACTIVITY. When I say 'TIME IS OVER' please stop writing immediately.
6. Please do not start until you are told to do so.

ACTIVITY—IV : ANSWER SHEET OF PRODUCT IMPROVEMENT

PLEASE FILL IN :

NAME :

SEX :

AGE :

SCHOOL :

CLASS :

DATE :

FOR EXAMINERS USE ONLY

CODE NO.

ITEM	F	X	O	C	REMARKS
1					
2					
3					
T					

(Please write only at the specified place, against the numbers)

I. SUBJECT : A DOLL

S. No.	IMPROVEMENT	S. No.	IMPROVEMENT
1.		18.	
2.		19.	
3.		20.	
4.		21.	
5.		22.	
6.		23.	
7.		24.	
8.		25.	
9.		26.	
10.		27.	
11.		28.	
12.		29.	
13.		30.	
14.		...	
15.		...	
16.		...	
17.		...	

SCORING SHEET (CODE NO :)

ACTIVITY I

ITEM	F	X	O	E		
1						
2						
3						
TOTAL						

ACTIVITY II

1						
2						
3						
TOTAL						

ACTIVITY III

1						
2						
3						
TOTAL						

ACTIVITY IV

1						

SCORE SUMMARY

ACTIVITY I						
ACTIVITY II						
ACTIVITY III						
ACTIVITY IV						
GRAND TOTAL (A)						

NON-VER BAL	ACTIVITY I					
	ACTIVITY II					
	ACTIVITY III					
	GRAND TOTAL (B)					

GRAND TOTAL (A)						
GRAND TOTAL (A)						
GRAND TOTAL (A+B)						

APPENDIX - B

Non-Verbal

ACTIVITY-I

PICTURE CONSTRUCTION

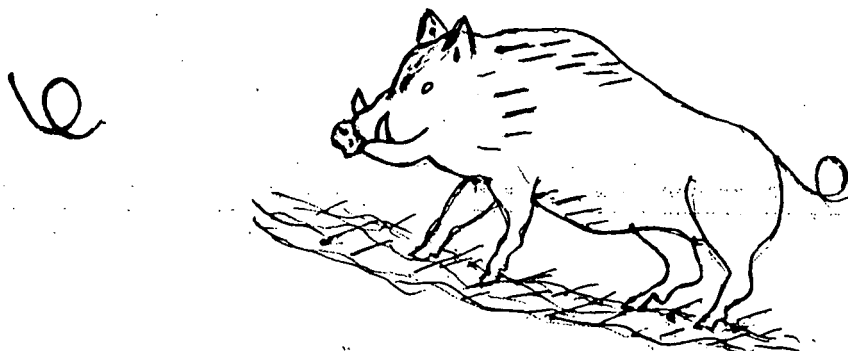
INSTRUCTIONS:

Please go through the following instructions carefully as I read them aloud to you.

1. Here is a separate Answer-Sheet in which you have been given two simple line drawings. Using them as a base or as a part you have to draw pictures which you consider both novel and interesting. You can turn the page in any way you like to begin to draw your picture. Think of a picture which you feel no one else would be able to make.
2. Try to add as many ideas as you can to make your picture interesting and novel. You need not give much attention to accuracy and beauty of the picture. What is more important is how novel and interesting the picture is that you have drawn. Therefore, copying will not be of any help.
3. When you have completed the picture, give a suitable title to it in the space provided for. Try to make the title as interesting and unusual as possible which will show how imaginatively you can think.
4. You will be given 10 minutes for this ACTIVITY. After every 4 minutes you will be told the time so that you may move on to the next item in the ACTIVITY.
5. Please get your doubts clarified before you start the ACTIVITY. When I say 'TIME IS OVER' please stop drawing immediately.
6. Please do not start until you are told to do so.

The example given below may show you how to do it correctly.

EXAMPLE:



Title: A wild pig coming into the village at night.

PICTURE CONSTRUCTION

ACTIVITY-I

PLEASE FILL IN :

NAME :

AGE :

SCHOOL :

CLASS :

TRIBE :

DISTRICT:

SEX :

ROLL NO. :

DATE:

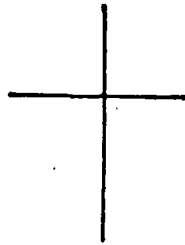
FOR EXAMINERS USE ONLY

CODE NO.

ITEM	E(N)	E(V)	O(N)	O(V)	REMARKS
I					
2					
3					
T					

(PLEASE CONSTRUCT THE PICTURE ONLY WITHIN THE SPACE PROVIDED FOR).

I.



TITLE:

2.



TITLE:

ACTIVITY-II

PICTURE COMPLETION

INSTRUCTIONS:

Please go through the following instructions carefully as I read them aloud to you.

1. Here is a separate Answer-Sheet in which you have been given 10 incomplete pictures. You are to complete them in any way you like. Think of a picture which you feel no one else would be able to make. Try to add as many ideas as you can to make the picture novel and interesting.
2. When you have completed your picture, give a suitable title to it in the space provided for. Try to make the title as interesting and unusual as possible which will show how imaginatively you can think.
3. You will be given 15 minutes for this ACTIVITY. After every 4 minutes you will be told the time so that you may move on to the next item in the ACTIVITY.
4. Please get your doubts clarified before you start the ACTIVITY. When I say 'TIME IS OVER' please stop drawing immediately.
5. Please do not start until you are told to do so.

The example given below may show you how to do it correctly.

EXAMPLE:



Title: The Head-gear of a tough Naga-warrior.

PICTURE COMPLETION

ACTIVITY-II

PLEASE FILL IN : NAME : AGE : SEX: SCHOOL: CLASS : ROLL NO. : TRIBE : DATE : DISTRICT:				FOREEXAMINERS USE ONLY				
				CODE				
ITEM	E(N)	E(V)	O(N)	O(V)	REMA RKS			
1								
2								
3								
T								

(PLEASE DRAW THE PICTURE ONLY WITHIN THE SPACE PROVIDED FOR).

I.



TITLE:

2.



TITLE ::

3.



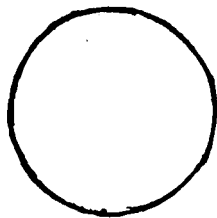
TITLE :

4.



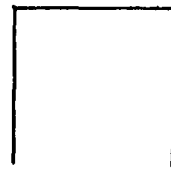
TITLE :

5.



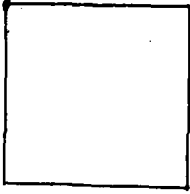
TITLE :

6.



TITLE :

7.



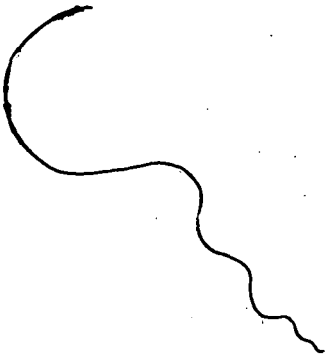
TITLE :

8.



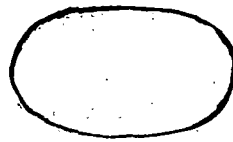
TITLE :

9.



TITLE :

10.



TITLE :

ACTIVITY-III

BOWS AND HORNS

INSTRUCTIONS:

Please go through the following instructions carefully as I read them aloud to you.

1. Here is a separate Answer-Sheet in which you have been given two types of 'FIGURES'; namely, a bow and a horn. You can think of many pictures or objects which you can make with the help of these two figures using them as main parts.
2. You have to make each picture as interesting and unusual as possible. Each picture should be different from the other and must convey a complete idea. Try to think of pictures which no one else might have thought of.
3. After completing each picture, give a suitable title to it in the space provided for. Try to make the title as interesting and unusual as possible which will show how imaginatively you can think.
4. You will be given 10 minutes for this ACTIVITY. After every 4 minutes you will be told the time so that you may move on to the next item in the ACTIVITY.
5. Please get your doubts clarified before you start the ACTIVITY. When I say 'TIME IS OVER' please stop drawing immediately.
6. Please do not start until you are told to do so.

The example given below may show you how to do it correctly.

EXAMPLE:



Title: Mahatma Gandhi addressing a meeting just after India's independence.

BOWS AND HORNS

ACTIVITY-III

PLEASE FILL IN :		FOR EXAMINERS USE ONLY					
NAME :		CODE NO.					
AGE :	SEX:	ITEM	E(N)	E(V)	O(N)	Q(V)	REMARKS
SCHOOL:		1					
CLASS :	ROLL NO.	2					
TRIBE :	DATE :	3					
DISTRICT :		4					

(PLEASE DRAW THE PICTURE ONLY WITHIN THE SPACE PROVIDED FOR).

1.



TITLE :

2.



TITLE :

3.



TITLE :

4.



TITLE :

5.



TITLE :

6.



TITLE :

7.



TITLE :

8.



TITLE :

9.



TITLE :

10.



TITLE :

11.



TITLE :

12.



TITLE :

13.



TITLE :

14.



TITLE :

APPENDIX - C

CONSTRUCTION OF A VOCATIONAL PRESTIGE SCALE

DIRECTIONS:

I am developing a 'Vocational Prestige Scale' for use in a research study. Here you are requested to judge a number of vocatbns according to their prestige value or general standing in Nagaland situation.

For each vocation given, please think carefully about its prestige value or general standing in Nagaland situation, and after having decided, give your 'Rating' on the 'Eleven Point Scale' attached on the right side of each vocation, as follows:

1. Place a cross mark(X) on '1' if you think the vocation has 'Highest' prestige value in Nagaland.
2. Place a cross mark(X) on '2' Or '3' / '4' Or '5' if you think the vocation has below Highest or Above Average prestige value in Nagaland.
3. Place a cross mark(X) on '6' if you think the vocation has Average prestige value in Nagaland.
4. Place a cross mark(X) on '7' Or '8' / '9' Or '10' if you think the vocation has Below Average Or Above Least prestige value in Nagaland.
5. Place a cross mark(X) on '11' if you think the vocation has Least prestige value in Nagaland.

Note :

Please do not try to judge a vocation according to your own opinion of someone you know who has such a vocation (i.e. not on the basis of liking or disliking of the person). Please mark only one answer(X) for each vocation. Judge the prestige value strictly according to Nagaland situation.

PERSONAL DATA:

Please furnish the following information:

1. Your name :
2. Your address:
3. Your age : sex: religion:
4. Your academic degree:
5. Your present job, if any :

RETURN REQUESTED :

Please return the 'Questionnaire' at your earliest to the Investigator.

APPENDIX- D

REASONS BEHIND VOCATIONAL CHOICE

1. I like the work involved in this vocation.
2. There are chances for rapid progress in this vocation.
3. My friend is also planning to enter in this vocation.
4. I possess the ability to do the work involved in this vocation.
5. My father says that this vocation suits me.
6. One can find employment easily in this vocation.
7. My mother wishes that I enter this vocation.
8. People earn a lot of money in this vocation.
9. No tedious training is required for this vocation.
10. This vocation enjoys the highest prestige in our society.
11. Hard work like other vocations is not required in this vocation.
12. My teacher has encouraged that I should choose this vocation.
13. My relatives have advised me to select this vocation.
14. There is no risk to life or health involved in this vocation.
15. I like the atmosphere in which people are engaged in this vocation.
16. Job security is more in this vocation.
17. The subject which I have selected in my course will be useful in this vocation.
18. I always get good marks in the subjects which are necessary to be successful in this vocation.
19. I will be doing my duty for the nation or society being in this vocation.

APPENDIX-E

PERSONAL INFORMATION PROFORMA

1. Name :SexAge
School:Class
Roll No.:DistrictTribe
Date :

2. Education of Father/Guardian :

(a) School/College exam.passed: _____

(b) Technical Professional exam.passed: _____

3. Occupation of your Father/Guardian :

(a) In what organisation does he work?

(b) What is his designation?

(c) What is the nature of the work?

4. Income of your Father/Guardian :

What is the monthly income?

5. What vocation do you like to choose:

Please read the 'List of Vocations' given in the next page carefully and select a particular vocation you want to choose for your future life. Write the name and serial number of the vocation you have chosen in the space provided below.

Serial number	Name of vocation
<input type="text"/>	<input type="text"/>

6. Please write the number(s) of reasons from the list of 'REASONS BEHIND VOCATIONAL CHOICE' (given in part-III). You may give more than one reason but not more than three reasons.

No. of reasons for Vocational Preference

<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------

LIST OF SCHOOLS

Mokokchung District

1. Nibukhu high school
2. Government high school Mokokchung
3. Government high school Delong
4. Government high school Ungma
5. Government high school Ongpangkong
6. Queen Mary's school
7. English K.G.school
8. Mode English school
9. Edith Douglas school
10. Bethesta Institute
11. Baptist English school

Kohima District

12. Faith Christian Academy
13. National high school
14. Christian Mission English school
15. Government high school Kohima
16. Government high school T.M.
17. Government high school Seikhazu
18. Government high school Jotsoma
19. Government high school Vishema
20. Ministers'Hill Baptist English school

contd/-

21. Chandmari English school
22. Little Flower school
23. Baptist English school
24. Victory high school
25. St.Paul high school
26. Kohima English school

APPENDIX - G

DATA FOR CREATIVE THINKING & VOCATIONAL PREFERENCES

1	1	1	2	1	2	0	41	6	2	49	133	64	21	85	115	248	000000	3
2	1	1	2	1	2	0	15	9	4	58	112	67	25	92	122	264	000000	3
3	1	1	2	1	2	0	36	10	5	51	140	47	30	77	119	259	000000	3
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699	17	3	2	1	2	1	61	33	22	116	166	96	27	123	134	300	504.70	1
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