BIRTH ORDER AND PSYCHOLOGICAL FUNCTIONING
FIRST BORN MALE CHILDREN IN A MATRILINEAL SOCIETY–ZAMBIA
THE NSENGA CASE

BY

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ABSTRACT

The effects of birth order (ordinal position) on psychological functioning, as they relate to an individual's personality, were investigated in a matrilineal society - the Nsenga - of Petauke District in the Eastern Province of Zambia. The main purpose of the study was to establish whether birth order has any significant contribution to how individuals in large families and within the extended family system function in relation to dependency, academic performance and manual skills.

First born boys aged between 12 and 15 years were compared with third born boys with similar backgrounds and academic levels on dependency, academic performance and manual skill. Additionally, first borns were compared with third borns on level of anxiety before and after an anxiety arousing situation. Dependency was also measured experimentally. Fathers and father surrogates of the rural sample of boys were asked to indicate their dependency/independency expectations of their first borns. Questionnaires were used for measuring dependency in the survey study and for fathers' expectations. For the academic performance comparisons were made from results of two previous tests. In manual skill, subjects made sisal strings. Apart from the experimental study of dependency, subjects for the survey part were drawn from a rural sample. Subjects for the experimental part were drawn from two Lusaka Primary Schools in high density areas.

Results on dependency both in the survey and experimental studies show that first borns are more dependent than third borns \((t=8.3, \text{df}=98, P<.05; F=69.36, \text{df}1, 90; P<.05; \text{and } X^2=9.69, \text{df}=1, P<.05)\) respectively. On academic performance, there are no significant differences between first borns and third borns although the means show a tendency of better
Performance by the first borns (t=1.09, df=98, F=0.05; F=1.190, df=1,98; P<.05) with means of 368 and 353 respectively). Performance on manual skill shows that first borns are better than third borns (t=4.46, df=98, F=0.05; F=19.86, d=1.98, F=.05). Parental expectations also show a tendency towards dependency as seen in 468/800 responses for dependency.

On the measure of level of anxiety after experimental manipulation, results show that first borns' level of anxiety is higher than that of third borns after the presentation of an anxiety arousing stimulus.

These findings have been interpreted as suggesting that birth order importantly affects psychological functioning of individuals in this culture on dependency, manual skill and proneness to anxiety in threatening situations but that birth order seems to have no impact on academic performance.
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(i) - Context of the Problem.

A great deal of research conducted to investigate the effect of ordinal position has established that the order of birth plays a significant role in influencing personality and behaviour. However, a lot of such research just generalized ordinal positions especially in the "later borns" aspect without being specific as to which particular later ordinal position was being compared with first borns. Birth order effects have usually been looked into while investigating other variables. Kammeyer (1967) strongly asserts that no one using birth order as a research variable is interested in birth order per se, but only in birth order as it stands for other variable factors. It should however be stressed that birth order in itself is an extremely accessible area of research datum. Infact the serendipitous research findings do by themselves necessitate research that should directly investigate birth order effects.

The scanty research that currently exists on personality in Africa demands more than is realized a greater effort by social scientist in the investigation of factors contributing to the development of the African Personality. More precisely, the problem of personality development in Africa calls for greater research - one such area for investigation is birth order. In all cultures, the first birth is an event of profound psychological importance for the parents and later births are events of considerably less excitement compared with the first birth.

One can plausibly expect that with a first child, parents who are still inexperienced and insecure will respond more to signals from
the child and respond more quickly than they might with later borns. This over reactivity on the parts of the parents of first borns creates a sort of psychosocial environment which is different from that created to the later borns. Sampson (1965) for example, says, "Ordinal position creates a particular kind of psychological and sociological environment and a set of psychological experiences that are assumed to lead to the development of patterns of personality and behaviour", (In Maher, 1965, p.175). Murphy, et.al: (1937 - cited in Sampson, 1965), stresses the importance of the child's psychological environment in the family which he says is of utmost importance for the development of social behaviour. Sampson (1965 - opt cit) says that parents are cognizant of the fact that their own actions, anxieties, parent-child interactions and perhaps aspirations change as a function of the child's order of birth.

Each child in the family, according to ordinal position, is handled differently by parents who have different levels of excitement at the birth of each child. This should give each child in the family a different interaction with parents thereby giving each child a different psychosocial environment in which the child has to develop.

On the interaction between children and parents, Kammeyer (1967) indicates that parents usually have more time and energy to devote to the process of socializing the first born. As a result, first borns hold views that are similar to their parents. The greater time and energy feature of parent and first born child interaction is often suggested in birth order literature as an explanation for why first borns are different from later borns.
More precisely, Kammoyer (1967) identifies social learning experiences of first borns and says that parents attach great importance to the birth and existence of the first child. He further says that parents possess greater love for first than for later borns. While having more time and energy to devote to the process of socializing the first born child, they are at the same time less knowledgeable about the process of rearing the first born because they lack experience. The first born is always close to the adult world. He is then more openly exposed to adult expectations and pressures. There are no generational peers to mediate between the adult world and the child's.

The less energy and time parents have for later borns and the great deal of experience the parents have about child-rearing will all seem to reduce parent-child interaction and to accelerate in the child less dependency on the mother which leads to independency. Whilst the first born makes life difficult for later borns thereby being a threat and a source of anxiety for the younger child, the first born is very much affected by the dethronement process and should seek re-assurance from parents.

It is this nature of interaction between parents and first borns, between parents and later borns and between first borns and later borns that creates the psychological environment into which each child grows according to the order of birth. The experiences that arise as a result of order of birth importantly affect personality development.

The present study focussed on first born male children for the reason that in the African Context, it is on male children that
parents place the perpetuation of the family name. The "keeping" of the family; the taking over of family responsibilities and upon whom their aspirations for higher achievement and aspirations which they have not realized themselves rest. In most cases, female children will get married and as such, it is not common to find parents putting their hopes on female children. Many societies in Zambia are matrilineal in nature and for this reason a matrilineal society was chosen. In order to avoid communication problems the Nsenga were chosen because I grew up amongst them as a Nsenga which meant that there would be no need for interpreters and research assistants for carrying out the study.

While it is true that cultural differences exist in ways by which mothers interact with their children (Whiting, 1961; Sears et al., 1965; Weber, 1975), expectations of parents and the way mothers treat and handle certain children by virtue of their ordinal positions should not differ markedly from culture to culture. Thus, Schachter (1959) stated that parents in all cultures lavish affection on first borns, but because the mothers are inexperienced and insecure in handling the first child, they consolidate the child's dependence needs. This point is echoed by Kammeyer (1967) who stresses that parents attach great importance to the birth and existence of the first born child and hence show greater love to first than to later borns although the last born is usually given more love than middle siblings. In spite of all this affection, parents are less knowledgeable about the process of rearing the first child because as has already been stressed above, they lack experience.
Going through the available literature bearing on the issue of ordinal position as a research variable, one immediately notices that many studies were conducted on college sophomores, psychiatric patients, kindergarten children most of them just lumping first borns against later borns (e.g. Sampson, 1965; Altus, 1966; Kammeyer, 1967). Given such subjects, it becomes difficult to generalize the findings. Shovivolt T. et.al (1973) says that many studies use very small samples and group males and females together. Teachers' ratings have also been used which as can be envisaged are not devoid of biases. Usually in such studies, there is a critical lack of control of variables.

This study looked at the influence of order of birth matching sex, socio-economic status, academic level and age. Two specific ordinal positions were selected without putting together many ordinal positions against the first. First borns were compared with third borns. The areas of influence looked at from the birth order point of view were dependence, academic performance and manual skills.

Except for the experimental part on dependence which was carried out in Lusaka Primary School, the rest of the study was conducted in a rural area with subjects differentiated mostly on the birth order variable.

It is important to note that in the traditional matrilineal society where the study took place with its characteristic extended family phenomenon, the child interacts with more people than just with parents. This implies that greater mother - child interaction should be a function of ordinal position.

(ii) Statement of the Problem

The purpose of this study was to establish empirically whether ordinal position in an African, traditional matrilineal
society with its extended families has any impact on the male children's psychological functioning. First born male children's performances on dependence scale, academic performance and manual skills were compared with those of third born male children of the same age, academic level, socio-economic status as their first born counterparts. The study aimed at elaborating and testing the birth order theory in a different culture and predicting and explaining the major personality consequences of birth order in Zambia.

(iii) - Review of Literature

The theoretical logic of ordinal position research is that a specific position in the family importantly affects the kinds of experiences one encounters (Sampson, 1965). Birth order is defined as the "Sequential position of a person among his or her siblings with respect to order of birth", (Sampson, 1965; In Maher, 1965, p.38). In a lot of research on birth order, birth order is interchangeably used with ordinal position. In more precise terms, the birth order theory states that, "A specific position in the family importantly affects the kinds of experiences one encounters in life". (Sampson, 1965 opit. cit). What should be clear in our minds is the fact that it is not the position per se that affects such experiences one encounters but rather the kinds of interactions one experiences both with parents and other siblings as a result of a given ordinal position. This theory is based on the assumption that a specific position in the family creates a particular kind of psychological and sociological environment and a set of psychological experiences that are assumed to lead to the development of a specific constellation of personality characteristics. This point though alluded to earlier on is emphasized in this section for it is the crucial point one needs
to understand clearly in order to understand the essence of birth order research.

The theory further states that birth order has consistent effects on the personality development of an individual everywhere, as well as the personality functioning according to their ordinal position in their families. Even if problems of age-spacing, family size and socio-economic status do provide problems in birth order research, it is strongly argued (Sampson, 1965) that these would not systematically differentiate first and later borns in any population. However, this argument should not be construed as eliminating control of variables in birth order research.

**And aggression Dependence.**

Empirical evidence in support of the theory does exist. For example, on aggression first borns were less aggressive than later borns, (Goodenough and Leahly, 1927; Pauline Sears, 1951; Gerwitz, 1948; Patterson and Zigler, 1947; Koch, 1955; Mcfarlane, 1954 - all cited in Sampson, 1965). However, contradictory findings exist, e.g. (Stratton, 1927; Storer, 1961; Wile and Davis, 1941 - cited in Sampson, 1965) who indicated that it is the first borns who are more aggressive than later borns.

One other personality characteristic that has been studied about birth order is dependence. Schachter (1959) in his study with college sophomores found that in anxiety arousing situations, first borns are more dependent than others. Here, caution should be taken in dealing with dependence. A lot of studies in this respect have measured aspects of dependence like influencibility and comformity. More specifically, birth order theory predicts that the first borns
will tend more than later borns to be dependent and that they will be more differentiated on many other personality variables. Studies by (Munro, 1967; Goldberg, 1970; Jelliffe and Bernet, 1975; Munroe and Munroe, 1975) all indicate that reasons for such differentiation should be attributed to the kinds of interactions that existed between the child and parents in the formative years according to the ordinal position of the child.

Since these interactions are by no means completely the same cross-culturally, there is no way in which the conclusions given by these cross-cultural researchers can mean by implication that birth order effects can be predicted cross-culturally. Stein and Susser (1960 - cited in Munro, 1967, p.9) support the view given above by saying that, "The way parents plan their activities and interactions provides both direct stimulation and models for children". While this point is well presented, it should be realized that the birth order theory predicts some kind of similar treatment of children by parents by virtue of being in certain birth orders. In this respect, Schachter (1959) asserts that because of the concern and anxiety parents have about their first born child, they will tend to be over protective, very loving and encouraging the child to be near them all the time. This kind of parent child interaction and the kinds of relationships that exist between first borns and their parents is said to lead to dependence. It was part of the aims of this study to see if this holds true here in Zambia as well. Sears et.al., (1957) and Kammeyer (1967), view the interaction between first borns and their parents as leading to dependence and go on to add that this arises from the first borns' reliance on parents for direction and
advice which leads to dependency in later life. Their more access to parents means direct verbal contact as well as physical contact with them more than with other siblings born later in the family.

Claussen (1966 - in Munro, 1967), argues that ordinal position of the child plus family size, affect the kind and amount of attention an individual child receives from the parents as distinct from other siblings. There is strong evidence that first born children are at an advantage. Further studies by Rosenberg and Sutton-Smith (1964 - in Munro, 1967) and Altus (1965) provide further evidence about first borns being at an advantage in terms of this parent-child interaction. Bolton (1962 - in Jelliffe and Bernett, 1975), adds to this contention by precisely identifying the period from birth to five years as being of special psychological vulnerability as it is one of dynamic progress during which mechanisms are found which can determine the pattern of reaction throughout life. He concludes by saying that what people do to and for the child have a profound effect on the child's later personality.

Conclusions that can be drawn from the foregoing should include one that there are marked differences in parent-child relationships especially in the interactional aspects as a result of birth order. It has been demonstrated that first borns are at a greater advantage than later borns.

And Intellectual Behaviour.

One other area which provokes natural curiosity and interest to any social scientist interested in personality functioning in children irrespective of birth order is education. Intelligence, academic performance and over the controversial I.Q. discussions all
fall under the general peg of education. The birth order theory does not overlook this phenomenon. Thus Bradley (1968) working with College students to find out the effects of birth order and school related behaviour, found that first borns attended college in greater numbers than later borns. He stresses that early personality factors favouring first borns are substantiated and extended while in school. Earlier on it has been mentioned that generally, first borns are more conformists than later borns. Bradley (1968) says that this personality aspect seems to more frequently meet the teachers' expectations. First borns are also said to show more susceptibility to social pressure, a quality which favours schooling. By virtue of their greater dependency needs than other children, first borns exhibit greater information-seeking behaviour which facilitates learning and being on better terms with teachers. Other personality qualities in first borns conducive to educability include low aggression, being judged as serious by others and being more sensitive to tension producing situations which all help first borns to enhance their academic performance.

In contributing to the effect of birth order on college attendance, intelligence and academic performance, a study by Altus (1966) indicates that first borns were higher on tests of verbal intelligence. Warren's (1963) findings show that there is overwhelming evidence which indicates that first borns of both sexes attend college in relatively greater numbers than later borns. He attributes this to the first borns' susceptibility to social pressure and their being dependent. Warren's findings also make very remarkable conclusions by saying that college attendance may be
a response to social pressure which is greater amongst students with parents without college education. He also stresses that social pressure toward college has increased in recent years. It should not provide us with any problems to realize that in Africa, greater value has been placed on education since independence.

Dean (1941, in Altus 1966), says that since first borns sought adult attention and asked more questions showing more curiosity, and by virtue of the first born's access for an indeterminate period of time to parental interaction which he does not have to share with a sibling, they tend to get on well with the teachers who in schools and colleges are surrogates of the adult world. In conclusion, one sees that apart from being under pressure from parents for higher achievement, first borns with their curiosity, dependence upon adults and greater conscience development, make them respond more affirmatively to the teacher and to the school. The teachers' approval of these behaviour patterns serves to augment further the first born's tendencies to do that which is expected of his/her role as a student.

In another study on 'Birth order and its sequelae' Altus (1966) stresses that ordinal position among siblings is related to potential eminence and educational attainment. In this respect and accordingly Ellis (1926) says that the first born and last were more eminent people. In his survey among university professors in Italian universities, Corrado (1915 - in Altus, 1966), found that more university professors in Italian Universities were first borns. A curious study in which the people recorded in 'who is who' of 1954 revealed that 52% of those who appeared in the book were first borns (Jones, 1954 - In Altus, 1966). Earlier on in the United States, Roe (1953 - In Altus) found that 61% of 64 eminent scientists were first born
An investigation on intelligence by Terman (1925 - In Altus) showed that amongst 1,000 gifted children, the majority were first borns. In yet another study, Nicholas (1964 - In Altus, 1966) found out that 52% of 1,618 high school students were first borns. Other studies dealing with college attendance indicate that first borns attended more, e.g (Altus, 1962-1963; 1964; and 1965; Stewart, 1962; Bendor, 1928 - both cited in Altus, 1966). All other studies that have been done in the Western World are consistent in their findings on birth order and intellectual functioning.

Since just identifying who does better than who in academic performance does not itself explain the reasons behind all this academic success in first borns, it would suffice here to make further explanations. One man who made an effort towards this explanation is Clarke (1916 - In Altus, 1966). He says that first and last borns enjoy greater educational opportunity than do their intermediate brothers and sisters. He goes on to say that first borns succeed in getting a start before adversity befalls the family, or before the experience of caring for an increasing family of young ones becomes so great that it becomes necessary to curtail the education of some of the order children. A point to note here is that it has yet to be found as to the nature of results in this respect in a culture or society where adversity is the order of day, where adversity does not have to fall but is almost permanent in the society. Clarke goes on to say that youngest Children usually come along when older brothers may be grown up and in a position to help the youngest through school.
From this explanation, we should not be blinded to the fact that in some cases, it is the first borns' education that has to be curtailed to give way to younger siblings. This is in cases where for instance, because of limited resources in the family, the first born must not go very far with education for the reason that he should start work after some education in order to help the parents with the responsibility of educating the usually many children. The point of higher expectation in parents for their first borns expressed in earlier pages should make some complications in explaining why first borns do better in school than later borns.

In all these explanations, what should be taken as crucial apart from the genetic factors is the parental treatment accorded to children of different ordinal positions for it is this that has led the first borns to greater dependence on adult norms and higher expectations.

**And other Personality Traits**

Other researchers, e.g. (Aller, 1930; Rank, 1929. In Hurlock, 1979), have emphasized that each position provides a predictable personality pattern favouring the last and middle children. They however seem to fail to precisely specify in what personality traits the favour is more pronounced. In this general attribution of birth order to personality traits, Rank (1929 - In Hurlock, 1974) says that the last born has a more favourable position as far as personality is concerned than the first born.

The direct effect of order of birth comes from the role the person is expected to play in the home and what different members of the family expect of him. To conform to these expectations, the
individual is molded from earliest childhood into the pattern that the family members want the individual to follow. Another effect of birth order that directly affects the development of a personality pattern comes from competitiveness between siblings that develops as a result of different parental expectations. In this regard, it can be seen quite easily that later borns realizing that the first born is in a favoured position, especially if he is a boy, constantly compete for a comparable place of significance and success in the family. This in itself should give the first born, especially if he is a boy a continued craving for superiority over later siblings in different respects including manual skills in traditional societies.

While the first born craves for such a superiority he does so in an environment full of forces inimical to his total commitment. His having been over protected, his adult world orientation tend to counteract his desire for overall superiority.

It has been well established that parental expectations, pressures to conform to these expectations differ for members of the two sexes (Hurlock, 1974). She emphatically concludes that parental expectations are centered more on the first born, especially more so if the first born is a boy, than on later borns. Later borns are less subjected to achieve unrealistic goals and are usually subjected to a more relaxed method of child rearing.

Birth order effects on personality do not end when the person begins to spend more time outside the home than in the home. The effects go on beyond the home in all the life of the individual. This view has been strongly presented by researchers e.g. (Sears, et.al;
1957; Sutton-Smith and Rosenberg, 1968; Bossard and Boll, 1966; all cited in Hurlock, 1974).

Marital Adjustment

Another interesting area in which birth order effects have been predicted is marital adjustment. This area should provide very useful and interesting reading as the rate of divorces is reaching alarming heights both in developed and developing countries. The rate in Zambia provides very sad reading for social scientists and all concerned. Hall, (1965 – In Hurlock, 1974) provides an explanation in terms of marriage combinations and their relevance to birth order theory predictions. He says that in marital adjustment, first born males who have younger sisters, and younger sisters who have older brothers are better adjusted to married life. He further asserts that if the wife is the older sister to young brothers, she is likely to boss the husband especially if the husband is the younger brother of older sisters. However, if both wife and husband are first borns, they carry into adulthood personality patterns characterized by bossiness and a tendency to feel superior. The result of such marital combination according to Hall (1965) is a frictional marital relationship. It is essential here to offer a word of caution that these findings should be understood and appreciated in the spirit of "All other things being equal", for many other reasons could and have always been advanced explaining marital instability. These explanations given herein only pertain to birth order effects perspective. Perhaps it would provide even more controversy if Hall indicated the best psychological marriage combinations. Suffice it to say here that perhaps the first
and last born combination seems favourable.

And Social Behaviour

On other social behaviours, the theory first makes an assertion that last borns resemble in some respect the pattern of first borns but differ enough in other respects. The last born is likely to be pampered and spoiled by siblings as well as parents, and it seems that little is expected of him. Both first and last borns become self-centered, selfish and bossy but for different reasons. Last borns are also dependent lacking self-confidence and frustration tolerance; they are resentful showing defiance of authority and the tendency to be troublesome, as indicated by Hurlock (1964). Hurlock further says that last borns have relatively weak achievement motivations because they are not pressed to achieve. Little is expected of them and therefore they have no reason to worry or feel guilty about not being successful. The last borns also experience permissive upbringing which leads to their not harnessing their imagination for creative tasks. It is also said that last borns tend to use their imagination for day-dreaming and identification with heroes in mass media. In their effort to mimic older siblings they develop feelings of inadequacy and lack of self confidence, (Hall, 1964, and Harris, 1968; - In Hurlock, 1974), say that the constant contact with siblings than with adults, their not being expected to assume responsibility and their weak motivation to succeed make last borns give the impression of being immature or young for their age. Cushman (1964 - In Hurlock, 1974) says that in their social interactions, last borns are more extroverted, optimistic and happy.
This is because by virtue of their ordinal position, they have more opportunity to learn to get along well with other young people and enjoy life without feelings of guilty or anxiety about success — for less is expected of them.

By virtue of their ordinal position, middle borns receive a more relaxed upbringing than either the first or the last borns. The confidence parents have with the arrival of each new baby decreases the amount of time to devote to the child. Each child in the middle is less protected and therefore less dependent. However, they may feel inadequate and resentful because the first borns are peacemakers which sometimes they are not able to keep. Hurlock (1974) says that middle children usually accomplish less in life although from their peer relationships they develop personality traits that lead to good personal as well as social adjustments. This leads them to more popularity with their peers than are first borns. A frictional relationship usually develops between them and first borns.

From the above account of the birth order theory, it is clear and evident that the experiences surrounding an individual as a result of the individual's birth order leave a mark on the individual's personality. One clarity that this shows is that birth order per se does not have the effect but rather the interaction between this variable and the parental interaction expectations and aspirations which produce personality changes. Personality patterns associated with each position as a result of the interactions contain both desirable as well as undesirable patterns and as a result, no particular ordinal position should be regarded as better than others.
While it seems clear from the above reviewed literature that one might tentatively say that the position of the middle child is more favourable than that of either first or last born in a family of three or more, it would be dangerous to think of any ordinal position as the best. For examples, Dean (1947 - In Altus, 1966) indicates that first borns are more co-operative than later borns. In spite of all this co-operation, Schachter (1964) shows that first borns are not so well liked by their peers as later borns. In an interesting investigation with male students, Altus (1965) found that male students with older sisters close to their age were significantly less masculine and that in general, first borns showed up for voluntary experimental testing more than later borns. Schachter (1959) also indicates that first borns are more vulnerable to stress and seek company under stress. Gerald Rabbie (1961 - In Warren, 1966), offer clearest evidence of a stronger affiliative tendency under stress in first borns.

Other researchers e.g. (Dittes, 1961; Staples and Walters, 1961; Becker, Lerner and Carrol, 1964; Vatela, 1964; Scotland and Dunn, 1963; - all in Warren, 1966), confirmed earlier findings that on susceptibility to social pressure, responsiveness to suggestions by others, susceptibility to normative pressure from others, volunteer and identification, first borns represented a greater number than did later borns.

On self-esteem, a pattern of agreements on findings has emerged in spite of the contradictory findings. There is a theoretical rationale which suggests that first borns will have lower self-esteem than the later borns. This arises from his identification with adult other than with less distant and skilful
siblings. In this regard, Zimbardo and Formica (1963; in Sampson, 1965) found that first-borns had lower self-esteem than later borns, findings confirmed by Scotland and Cottrell, (1962 - In Sampson, 1965). Linking introversion with low self-esteem, Goodenough and Lowly (1927; - in Sampson, 1965) found first-borns to be more introverted than later-borns.

On delinquency, the trend has been toward inconsistent findings although there seems to be an overrepresentation of first-borns in this respect as indicated in studies by (Armstrong, 1933; Breckenridge and Abbot, 1912 Dugdale, 1910; and Winter, 1897; - all in Sampson, 1965). Other studies showing more delinquency in first-borns include those of (Cohen and Cobb, 1960; Sletto, 1934; Burt, 1925; and Rosenow and Wyte, 1931; - In Sampson, 1965).

In the area of general physical, personal and social adjustment, first-borns are said to have greater adjustment problems than later-borns. This has been stressed in research findings e.g by (Rosenow, 1931; Phillips, 1956; Orbison, 1954; Berman, 1933; Hion, 1932 Campbell, 1933 - all in Sampson, 1965). Contradictory findings to those such as those by (Bossard and Ball, 1956; Wile and Davis, 1941; Koch, 1956b; - all in Sampson, 1965), indicate that it is the later-borns and youngest children who have general adjustment problems. But, as can be seen, these studies are fewer than the many studies showing first-borns as being in difficulty adjusting themselves to physical, social and personal adjustment. Researchers Hawkes, Burchinal and Gardner (1958; - In Sampson, 1965) found that there were no differences in general adjustment. An isolated study by Roe (1953 - In Sampson, 1965) showed that birth order was not related to occupational adjustment.
To say that birth order and its attendant interactional aspects affect an individual in all conceivable aspects of personality seems that even in the area of neurosis, ordinal position should contribute to it. In this regard, Abenerth (1940 - In Sampson, 1965) found that first borns were less neurotic especially if they are from large families. Bonnet (1960; - In Sampson, 1965) did not confirm that first, last and only children were more neurotic. It is Schachter (1959) who found no relationship between birth order and neurosis.

On disease and health, Chen and Cobb (1960) found that first borns were more vulnerable to asthma than later borns. Later borns were however more prone to peptic ulcers than first borns. On susceptibility to alcoholism, Bakar (1949) - In Sampson, 1965) indicates that later borns were more prone to this than first borns. Hraut and Martensen - Larsen (1959 & 1957 - in Sampson, 1965) found that last borns in large families were more alcoholic than either middle children or first borns. However, some contradictory findings were though minimal do exist. For example, (Smart, 1963; Moore and Wimpeur, 1960; In Sampson, 1965) found that it was the first borns who were more alcoholic than later borns.

The above paragraphs have demonstrated that in spite of an array of inconsistencies that emerge from the entire spectrum of research, the existence of the many proven consistencies and the fact that good research methodology continues to produce differential effects when ordinal position is considered shows that it would be futile in the social sciences to overlook completely the contribution ordinal position has on the general personality development of the individual. In fact, each research finding on birth order tends to demand further
on-ation which "initi-ly" demands fur-thér research.

Contradictions

The contradictions prevalent in research findings on birth order effects seem to arise from methodological inadequacies and disparities other than from lack of efficacy of birth order as a contributing factor to psychological functioning. For example, research findings on birth order and aggression and dependency ! ... group first borns against later borns without necessarily stating clearly what specific ordinal positions in the 'later borns aspect'. It has now become clear that in such research, it would be futile grouping first borns with last borns and only children for there are similar personality patterns for these positions with outcome variables making differences only in their origins. For example, the differences in alcoholism favouring last borns would be a result of an over representation of last borns from large families (Schooler, 1972).

It is important in such research to control for social class of origin whenever birth order effects are examined. Another area of criticism of birth order research is that negative results have most often remained private (Schooler, 1972). The general background of the families from which samples were drawn are not usually mentioned. It would be beneficial to state for instance, socio-economic statuses, sizes of families, and whether only children were grouped either in first or last born categories.

Even where first and only children are grouped together like in Wrigsham's (1960 - in Warren, 1966) experiment of waiting with others for hypodermic injections and severe alteration
in the glucose level of the blood, it is not fair just to conclude that one group reported more feeling at ease than the other because here, differences by sex were not reported and what he called affiliative behaviour could as well be information-seeking behaviour. Induced to fearful situations while a worthwhile laboratory experimental procedure leaves many questions unanswered. Sears (1950) found that first-borns were more dependent from mothers' descriptions and teachers' ratings. He used very small numbers of subject, but, a part from this weakness of small numbers, the extent to which mothers and teachers can describe children objectively always remains suspect.

Schachter (1959) got a sample from a particularly subclass of alcoholics considered with crimes associated with alcohol and primary intoxication. He found later-borns overrepresented. Since his population was one of alcoholics, it is a bit difficult to see the validity of his conclusions.

Although Sampson (1965) argues very strongly that the problems of age, spacing, family size and socio-economic status do provide problems in birth order research (and indeed they do) and that these however would not systematically differentiate first and later borns in any population and are thus comparable with random errors, only in limiting the significance of obtained differences and the generalizability of the results, it is to be taken as crucial in all research on birth order that an effort towards control should always prevail.

For this reason, this study dealt with children of the same sex, age, socio-economic status, demography, educational level
in a rural setting in Zambia.

**Other Personality Theories**

Contradictory theories to the ordinal position theory in the development of personality include those of Freud's psychoanalytic theory with its stress on the early experiences and the subconscious. These early Freudian experiences do not however take place as a result of ordinal position, (Freud, 1936 - cited in Whitlow and Peck, 1975). Carol Rogers and George Kelly emphasize the whole person in their interpersonal theories. Rogers (1959 - in Peck & Whitew, 1975), stresses that the self is the organized pattern of perceptions, feelings, attitudes and values. The self is said to be the central component of the total experience of the individual. So, according to Rogers (1959) the self and the organism are both involved in initiating and controlling behaviour.

Kelly's theory is that of personal constructs which views man as a scientist in which it is argued that a person's processes are psychologically channelled by the ways in which he anticipates events, Kelly (1955 - In Whithow and Peck, 1975).Gattell (1965; - in Whitlow & Peck, 1975) has a trait theory which emphasizes the the idea that we all have the same traits but to different degrees and that in this way, no two individuals are exactly the same. There are other personality theories too numerous to mention that tend to contradict the birth order theory which emphasizes that a particular position in the family with it attendant relationships and interactional aspects importantly affects one's personality development.
The extent to which the birth order theory differs from other personality development theories is a matter of degree, for, as can be seen, psychoanalytic theories put stress on early experiences while the birth order theory stresses experiences as well at a particular ordinal position. Cattell's trait theory with its stress on same traits but to different degrees is not as removed from the birth order theory for the 'different degrees' will in this theory be as a result of the type of handling experience at each ordinal position. Initiating and controlling behaviour can not be divorced from the the types of conditionings experienced in early life in respect to ordinal position. Perceptions, attitudes, feelings and values can hardly be removed from the types of experiences one encounters as a result of one's ordinal position's handling by parents.

Following the logic of the birth order theory, it would seem that first borns with their close contacts with parents, would use them as models for imitation to acquire cultural specific skills like manual skills in the area where this study took place. Those skills differ according to the sex of the individual. As in the culture where I worked, it is imperative for males to know how to carve wooden spoons, make hoe handles, strings from different fibres including that of sisal, axe handles and many other mannal skills. Where parents are manually skilled and compelled by the economic life to know certain skills Munro (1967) says that child rearing practices and parent - child interactions determine the effectiveness with which the essentual skills and goals are communicated to the child. The extent to which this places the
first borns at an advantage should never be doubted.

Deutsch (1965, In Munro, 1967, p. 10,) says "A child in a large family has to compete for the parents attention and material resources". While it is true that competition may lead to better learning, what is crucial here is the source of such learning. First borns have a direct source of imitation in parents while later borns usually learn from other siblings. As families grow larger, the father's responsibility for discipline reduces the opportunity for identification of masculine qualities for boys, (Kohlberg, 1963 - In Munro, 1967). Nash (1965; In Munro, 1967) says that in achievement oriented child - wearing practices, fathers are given the function of reinforcing achievement in masculine - relevant areas. Whether it is the fathers or uncles charged with this reinforcing responsibility, nearness to the adult world in first borns, puts them at a greater advantage than later borns.

In line with the foregoing line of thought, Cobb and French (1964 - In Sampson 1965) indicate that unachieved aspirations of the father are projected more strongly on to the first born son. Sampson (1965) says that first borns are directed toward taking on many important leadership functions within their families. In traditional families, this leadership does not mean individualized supremacy over others, but such leadership as in family affairs, manual skills and decision making events. The contention by Connors (1963 - In Sampson 1965) that first borns have more access to parents and are more adult oriented than later borns should mean that first borns in traditional societies which are manual skills dominated, should be better placed in the acquisition of manual skills than later borns.
One of the aspirations not achieved by parents of children in third world traditional societies is education. Many such parents in Zambian traditional societies have not had the opportunity to excel in educational aspiration for reasons of the prohibiting school fees before independence. In the post independence era, education has been seen as the vehicle to vertical upward mobility. With this in mind, the pressure first born children should have from their parents to achieve greater educational heights should be obvious.

The study was done here in Zambia amongst the Nsenga people of Petauke District, Eastern Province. A brief description of the Nsenga follows in the next Section. All work on birth order as a research variable has been done outside Africa in the Western World.

Section iv - The Nsenga

In this appropriate section about the population from which I got my sample for this study, it should be re-emphasized that the main reasons for the choice of the Nsenga for the study include the fact that I would have no communication problems since that is where I was born and reared, and indeed I had no such problems. The other reason is that the Nsenga are a matrilineal society, a feature which represents the majority of the tribes in Zambia. Working amongst your own people lessens the expenses needed for translational and interpretational activities. This familiarity with the Nsenga was a facilitating element in carrying out this research.

The Matrilineal Nature of the Nsenga.

The Nsenga are the dominant tribe of Petauke District in the Eastern Province of Zambia numbering about one hundred and twenty-five thousand people. A common thread seems to run through all the
matrilineal societies in Eastern Province which puts a lot of
importance on the uncle of children, i.e., the maternal brother of
the children's mother. Bruner and Harwick (In Serpell, 1974)
describe the Chewa matrilinealism which is in almost all cases
similar to that of the Nsenga as emphasizing that as well.

Nsenga marriages are uxorilocal (matrilocal) at first although
after some years in the wife's village, the man carries his wife to
his village giving these marriages some virilocal aspect. The basic
unit of a Nsenga village consists of members of the headman's
matrilineage, spouses of married matrilineage members and male
members' children who belong to the matrilineages of their mothers.

The matrilineal nature of the Nsenga, like all other matrilineal
societies in the Eastern Province, is characterized by institutions
relating to rights over children, succession or status, inheritance
of property, marriage residence and the authority of the mother's
brother vis-a-vis the father. This common thread is extensively
discussed by Marwick (In Serpell, 1974) writing on the Cewa matrilineal
society. The Cewa, it should be noted, are the most immediate
neighbours of the Nsenga to the east and form a minority group in
Petauke District. They are the majority in Katete District
neighbouring with Petauke.

The uncles are the most important authority figures in each
Nsenga family. When they die, their nephews (usually most senior
nephews) will inherit their wealth and some statuses they might have had
including headmanship if the uncle was a headman. The fathers are
particularly subordinate to uncles' authority although they have powers
to run their marriages in their own ways.

It should however, be noted that matrilinealism like many other traditional institutions is rapidly vanishing with the spread of this money economy with its concomitant individualistic tendencies. For instance, in the typical matrilineal Nsenga tradition children will be taken by their mother in the event of divorce and the welfare of the children becomes the immediate responsibility of the mother's brothers - the children's uncles. Today, however, the responsibility of looking after the children is the father's in case of divorce. The courts give the children to the father. The weakened authority of the uncles can also be seen in terms of educating the children. Today, fathers amongst the Nsenga are responsible for their children's education because the economic situation in these modern industrial times is such that very few uncles can afford educating other's children when educating their own children (usually very many) is already a burden on them.

Additional data collected from fathers of the rural sample in this study showed a decrease even in the typical rural Nsenga situation, in the 'loaning' of children to uncles. It would be a mistake however to think that these traditional Nsenga Institutions will disappear overnight. In typical Nsenga villages where this study was carried out, the birth of a male child, most of all the first one, is still regarded as a very important event for it entails a potential uncle, a potential 'keeper' of the matrilineal family, a potential 'keeper' of his sister's children. Having many children among the Nsenga is a pride of parents and the community. As a result, impotence and barrenness are despised and ridiculed
through beer party songs and songs sang when women pound maize for mealie-meal.

The village exists on a communal basis with cultivation as the main economic activity. The main crop cultivated is maize and thus forms the staple food of the Nkenga. Other economic activities, but to a lesser degree, include hunting, basket making and scattered fishing. Although one finds cultivation by ox drawn plough, cultivation is usually by hand using hoes in which both men and women are engaged. Men have to build houses, storages for maize, peanuts, beans and millet. Men also make mats from reeds and other grasses as well. This mat making activity involves a great deal of skill in string making from sisal and other fibres. One also finds blacksmiths in isolated places for this calls for individual skill. Handles for axes, hoes and other handle needing implements are made by men. Carving is also done for wooden spoons, walking sticks, cooking sticks and mortars for pounding maize. Drums are carved out of wood as well. In the valleys, fishing forms a very big economic activity as opposed to the plateau where maize and peanut farming prevails. In this regard, the masacline skills tend to slightly differ depending on the part of Nkengaland one discusses. Making fish nets and fishing baskets do provide a very essential part of the male economic activity in the Luangwa Valley. The Luangwa river is the boundary in the western Petauke, with Mozambique border in the Southern, Katete in the East and again Luangwa river in the north.

The women are regarded as bearers of children and one of their main functions is to rear children. In addition to this, they
are supposed to be well initiated in skills of looking after a husband and children, hence, the prevalent initiation ceremonies for girls as opposed to none for boys. Feminine skills include pounding maize into mealie-meal, sweeping huts and house floors, mudding newly built huts and houses, ensuring cleanliness around the house, looking for the family and caring for children. There are no exorbitant prices paid for getting a wife. As a result of this, divorce is not only rampant amongst the Nsenga but is also very easy indeed. However, there is a general trend in the Republic now that is spreading into these rural areas making some of the old ways difficult to go by if not illegal.

Being matrilineal, it means that in case of a divorce children belong to the wife for all marital problems are solved by the paternal uncle. Once again, this is now subject to general laws that operate for all in the country. In this society, there is a clear cut distinction between what are female roles and male roles. Children, according to their sexes are socialized towards those clearly defined and identified sex roles.

Amongst the Nsenga like in all other societies - traditional and modern. Child-rearing practices and adult personality are inseparable aspects of social structure. Infact, Jelliffe and Bennett (1975) stress the point by saying, "Although the details of traditional child-rearing practices vary widely in the great diversity of cultures on the African continent a common thread often appears to run through them" (p.365). This common thread should include mother-child interaction, feeding and sleeping arrangements and the phenomenon of weaning. Ritchie (1931) says
that in many African traditional societies, feeding is one long
debate with no thought of its ever ending. This is very true of
the Nsenga mother for she feeds the child on a 100% reinforcement
schedule. The child is fed whenever she cries no matter where
mother and child are and what time of the day it is. Any signs
of discomfort by the child are answered by putting the child to
the breast. Pain experiences resulting from inadequate feeding
are unheard of. This feeding period is protracted for a period of
two years and even longer for some children particularly last borns.
The Nsenga mother administers to her child every need and desire in
an unlimited degree. There is a close mother-infant relationship
in which the mother is highly responsive to infant demands.

The fact that this mother-child relationship is a general
pattern in most African traditional societies is given by (Lewis
and Goldberg, 1969: - In Goldberg, 1970). This picture depicts
a constant physical contact between the mother and the child day and
night. Contact-comfort is maximized by the use of the breast which
apart from being a source of food is also used for both nourishment
and comfort.

The Nsenga mothers engage quite a lot in holding and tending
their children which according to Goldberg (1970) maximizes physical
contact with their children. This implies complete security on the
part of the children and shows mothers as having an attitude of love
and indulgence. Doob (1965; In Munro, 1967) says that this attitude
pertains to many African women. Amongst the Nsenga, the child sleeps
beside the mother and is cuddled by the mother whenever it shows signs
of discomfort. The child is swathed to her mothers back most of the
times during the day. He remains with her body movements and even with
the rhythm of her heartbeat. Lambo (1960, In Jelliffe and Bennett, 1975)
adds to this by saying that the African child identifies body contact
with love and derives security from this contact. This contact forms
the basis for adulthood of the easy, confidence, readiness to
establish physical relationships with friends in the extended
family system.

After two years or so, the Haonga child is weaned, which
thing changes the earlier indulgent pattern completely. It has
already been said what relationship exists before weaning. Weaning
introduces a discontinuity between early experience and later
experiences. The fact that this weaning practice is prevalent in
Africa is given wide affirmation by (Lambo, 1959; In Weber, 1975;

Weaning is seen by the child as punishment for dependence
and should by implication strengthen the dependency need. Munroe
and Munroe (1975) support the idea that not only do early over-
protection and reinforcement increase dependent responses, weaning
as well though punitive in nature — as a punishment for dependence
— increases dependence. This view is strongly echoed by Zigler and
Whiting (1944) suggests that the association of hunger gratification
with supportive and help giving behaviour — during lactation — leads
to the development of an acquired drive for which dependent
behaviours are appropriate rewards. He further stresses the
inviolability of dependency supplication as a reaction to frustration
— weaning.
While it is unquestionably true that children in the Nsenga society like other children do all experience weaning, it is of no doubt that the weaning experienced by the first born child is in itself of special circumstance as a result of the interaction that exists between mothers and their first born children. This mother first child interaction cuts across cultures and thereby creates special psychological environment for first borns. In the traditional Nsenga, the child later on at 6 or 7 of age may be loaned to a maternal uncle which itself perpetuates the dependency need as it further entails frustration on the part of the child. The manifest function of this loaning to uncle is said to train children early in life amongst the Nsenga to appreciate the importance of the uncle. As has been alluded to above, current family set ups with current laws in the present economic situation, even in the rural areas, do not have much place for loaning. Suffice it only to say that the practice pertains to Nsenga traditional society.

Further more, loaning manifestly serves the purpose of introducing children to a complex of relationships prevalent in an extended family system. Huxley (1962; - cited in Jellife and Bennett, 1975) says that the psychological value of the extended family as a molder of personality may be because the duties and privileges in a big, open and inclusive family are exposed to the children. Amongst the Nsenga, this net of relationships in the extended family and its attendant duties, roles, is often understood through the clan system.

Fathers in the Nsenga society have the role of a friend to the child, although they are responsible for the training of children they are not the CHILDREN'S FATHER.
Disciplinary role may be assumed by the maternal uncle for a short while, fathers are nevertheless the most important agents for the training of adult roles in male children. The main concerns in this training are obedience, respect, love for one another, punctuality and honesty. Zhou (1980) working amongst the Ngoni who have historical connections with the Nsenga through patrilineal, found that father-present male children excelled in manual skills and cognitive skills, findings which support the importance of the father in training for various social, cognitive and manual skills in male children.

The whole socialization process amongst the Nsenga is aimed at producing an adult who will be co-operative, obedient, respectful, conforming to societal values, punctual, honest and acceptable. An intelligent adult who will perpetuate the Nsenga Culture. On intelligence it is noteworthy that Serpell (1974) working amongst the Chewa who share borders with the Nsenga on the Eastern side and some of whom live in Botswana District dominated by the Nsenga, who are also matrilineal, found that amongst these people, the definition of intelligence stressed co-operation and obedience. In both societies however, goodmanners and good behaviour are amongst the aims of socialization. It should be seen clearly as to why those are important in a society with a communal way of life - Conforming to societal values in a communal society should help the individual towards social acceptance. Infact, conformity plays a major role in the success and survival of a communal society.

The birth of the first child in the Nsenga is an event of great trauma and anxiety. So many taboos and tales surround its
expectation. Fathers to be are put on a strict code of discipline for the survival of the wife during labour. Leading the list of such disciplinary codes is one that the husband should be faithful to his wife as far as is humanly possible. Labour problems in the wife are usually attributed to the unfaithfulness of the husband during the course of the wife's pregnancy. The wife is usually put on a prohibitive diet excluding such nutritious foods like eggs, certain types of fish and some parts of beef apart from those she might already have been avoiding as an individual.

After the child is born, a new list of prohibitions both for the father and mother is introduced. The parents therefore attach great importance to the birth and existence of the first child—more so if it is male. If the first born is male and has a maternal uncle who has wealth (goats, pigs, large garden, cooking pots, pounding sticks, in some cases many wives, children, mats and also privately known medicines), the first born male nephew will inherit all or some of these. If amongst the Nsenga the first born male child is a nephew of a headman, he is the next heir to headmanship including the wealth of the headman—a big thatched house usually keeping a muscle loader gun—which other children are not entitled to.

Parents' expectation are high for the first born male children amongst the Nsenga as in many other societies—traditional and modern. They expect him to do better things than they have done. He is given maximum protection—overprotection), contact—comfort, love and care. He too however is the victim of the parents' inexperience in the rearing of children and also a victim of
parental inconsistencies prevalent amongst parents of first born children. He has to be seen as like the other children will.

What has been said about the Hsenga provides a different direction of socialization through child-rearing from that of the Western Cultures. This therefore should give the birth order theory a critical test for even if the psychological environments of first born children are said to be the same in many cultures, the attendant sociological and other psychological experiences which are assumed to lead to the development of a particular pattern of personality are by no means the same for all first born children in all cultures.

This study compared first born males with third born males who have undergone similar experiences in similar socio-economic statuses, of the same age and educational level. What was crucial was their ordinal positions through which differential parent-child interactions were anticipated.

Section (V) - Objectives and Hypotheses

Two specific objectives for the study were as follows:

(a) Elaborating and testing the birth order theory in a different culture.

(b) Predicting and explaining some of the personality consequences of birth order in Zambia.

In order to realize these objectives, and in view of the literature reviewed above, these three hypotheses were formulated.
(i) First born Males are more dependent than later born males.

DEPENDENCE: Emotional reliance of one person on another for comfort, guidance, support, re-assurance or decision making. Independence is the essential freedom from such emotional reliance.

This hypothesis stems from the mother - child interactions that pertain to first borns and their psychological impact on the personality development of the child.

(ii) First borns perform better in School than later borns.

PERFORMANCE: The extent to which one exceeds others in school work either on daily performance or during tests. The parental expectations, pressures, aspirations and responsibility placed on the first born and also the need in parents to achieve greater than they did including the nature of verbal stimulation by virtue of parent - child close interaction provoked the formulation of this hypothesis. Children born after the independence of this country should experience this pressure to achieve in school more than those born before independence when education was perceived as coercive. In fact, education now is seen as almost the greatest means of upward vertical mobility as the other vehicles of such mobility such as those by ascription and overnight money fortunes are difficult. The trend against tribalism, nepotism and other favouritisms should leave education as the most objective means for mobility.
First born males perform better on Manual Skills than later borns.

**Manual Skill:** Though not theoretically sound, this has been included because as has been indicated in the section on the society, men engage in manual skills which should be perpetuated for the survival of the economy of the society. Since first borns are seen as conservators of culture, manual skills being part and parcel of the culture should be a concern of parents on their first born male children. The closeness of the first born to the adult world could provide a facilitating aspect in the first born's acquisition of such skills. The manual skill in this study was bead string making.

The choice of this hypothesis reflected an attempt on my part to meet the requirements of what is usually referred to as the 'emic' approach as opposed to the 'etic' approach in research, like (1967). The emic approach studies the behaviour from inside the system while the etic approach studies behaviour from outside a particular system. The inappropriateness of the etic approach is being recognized by a large number of psychologists in modern research methods.

**Definitional Definitions:**

First born males - All boys in the sample who are first in their families according to order of birth. This excludes 'only' children and children who are first in their parents' subsequent marriages. All children who are "first" after the death of the first were excluded.
Third borns:— All boys in the sample who occupy this ordinal position irrespective of the sexes of the older siblings in their families. As in the case of the first borns above, control was done by selecting only those boys who were straight third borns without the incidence of death or divorce that led to other marriages. If however the one parent had been married and had no children in the previous marriage, then remarried wherein this child is third born, such a child was picked for this study.

Dependence:— The inclination to choose 'ALWAYS TRUE OF ME' on a questionnaire designed to measure dependence. The last category on the continuum was, 'NEVER TRUE OF ME.'

On the experimental part measuring dependence, dependence meant the choice to be "TOGETHER" with others while waiting for their turn to go to a room after the presentation of the Anxiety Arousing Stimulus (A.A.S.). Choosing to be alone was an indicator of independence.

Better Academic Performance:— The extent to which a child could do better than others in the two previous standardized tests, or any official tests that took place in the past two terms or two academic years.
Manual Skills:— Those skills normally acquired by children in accordance with sex. In this case sisal string making which is a masculine learnt skill. Sisal in its raw state is green. Sisal string making involved clearing this green stuff to remain with the white fine strings (threads). It needs some kind of care and skill in order to produce a clean, soft, white, "greenless" thread from the raw leaf of sisal.

The study involved 250 subjects of whom 100 were rural first and third born male children, 50 were parents of first born 50 male children and 100 were first and third born male grade vi children in Lusaka. 50 of the urban sample were first borns and 50 were third borns. Except for the choice of waiting together with others after the presentation of the A.A.S in the experimental part of measuring dependence, t-test and analysis of variance were used for statistical analysis of data. The Chi Square ($X^2$) was used for the choice aspect of the experiment.
Chapter 2

Methods and procedures

Dependency, Academic Performance and Manual Skill as functions of birth order.

A. A Survey Study

Subjects.

In this survey study, which took place in a rural area of Petauke District in Eastern Province in Chief Nyamphande, at five schools, a total of 150 subjects took part. Of these, 50 were first born male children, 50 third born male children and 50 male parents of the first born male children. The 100 male children were school pupils in grade VI and VII at these five schools, Nyamphande, Nsenya, Hisolo, Mwanza and Lutwazi. All these schools are in Chief Nyamphande’s area north of Petauke about 400 kilometres East of Lusaka. Petauke is in Eastern Province. Of the five schools, Hisolo was the farthest from Petauke at about 30 km. Lutwazi was the nearest to Petauke with Nyamphande 12.5 km from Petauke as the most central.

Selection of the first and third borns was done by asking in the grade VI and VII classes at each of the schools which of the pupils were either first or third borns in their families. The responses had to be verified by the classmates and also by the Headteachers. There was no problem in the pupils understanding ordinal positions. Only children and children first in second or third marriages were left out. Since these pupils were from the surrounding villages of the schools, verifications from other pupils were very reliable since it was common to find so many pupils from
a village coming to the same school. The fact that these were day schools offered a great opportunity for pupils to know each other well as they oscillated between school and village every school day. If the school does not run on a day borders basis it runs on a weekly borders basis, another opportunity for the pupils to live together at the school from Monday to Friday offering them the opportunity to know each other well even in terms of ordinal positions. Further more, because of the extended family phenomenon, the likelihood of their being related either through marriage or through the clan system was very high indeed. In view of the foregoing, selection of subjects according to ordinal position was conducted without any complications.

Using this procedure at five schools, 50 first borns and 50 third borns were raised for the survey study. Since it was unlikely to find a 100% male parent representation of the 50 first born male children, uncles and/or any male parent surrogate in the absence of the father of the child were selected on condition that he had stayed with the child for over 5 years. Fortunately, there were only four such parents out of the 50 parents.

Selection and development of Research Instruments

The nature of the hypotheses that were to be tested in the survey study at the five Primary Schools in the rural area demanded in itself only two questionnaires for the testing of hypothesis (1) dependency. In view of this, a questionnaire to measure dependency in children (The Child Personality Assessment Questionnaire (CPAQ) an adaptation from Rohner (1980) was developed as shown in (Appendix 1). This questionnaire as presented by Rohner (1980)
puppets to measure dependency in children arising from his rejection-acceptance theory.

In addition to the CPAQ, a questionnaire to measure the parents' expectations of their first born male children was devised. As in the earlier CPAQ, this was an adaptation of Rohner's (1980) parental assessment of personality questionnaire herein called Parental description of first born male children questionnaire (PDHMQ - as in Appendix 2).

The academic performances of the children were measured in terms of their results in the last two academic tests taken in the schools. All there was to do was to record test results of both first and third born males for comparison. On the manual skill however, a record sheet was devised for the recording of judgements from each of the three judges. Table 1 below shows the scoring sheet.

**TABLE 1 - MANUAL SKILL SCORING SHEET**

<table>
<thead>
<tr>
<th>SS NO</th>
<th>ORD PSN</th>
<th>SCORES</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1st Judge</td>
<td>2nd Judge</td>
</tr>
</tbody>
</table>

SS NO = SUBJECT NUMBER.
ORD PSN = ORDINAL POSITION.
2ND JDG = SECOND JUDGE.
3RD JDG = THIRD JUDGE.

All other instruments to be used by the subjects in the manual skill tests were provided by the subjects themselves as provision of the stick, sisal and the selection of wood on which
to do the manual skill might prejudice the results. This meant that
the subjects had to fend for themselves in the selection of these
other apparatus. The total period for the development of research
instruments was from March 1981 to June 1981.

**Pilot Studies**

Birth order research has usually tended to be survey in
nature (Schachter, 1959; Sampson, 1965) and as a result, has
usually called for questionnaires upon questionnaires. The
development of questionnaires calls for a careful selection of
questions to suit the nature, locality and of the subjects age.
For this reason, before the survey study, three pilot studies were
carried out.

The first of these conducted at Mtendere 'B' Primary School
here in Lusaka concerned itself with the selection of subjects –
the first and third born. It was initially doubted as to whether
the children would really understand the concept of birth order
thereby identifying themselves according to their ordinal positions.
The phenomenon of extended families and its intricate relationships
arising from several marriages accentuated the doubt.

**Procedure.**

Once the researcher entered the class, he requested the
class teacher to ask the boys in vernacular whether they understood
and knew the birth order concept. After being assured they did,
he then asked all first borns who are not the only children to
stand up. (The Nyanja version of first born is 'Mwana Woyamba').
When those boys stood up, he asked whether any of those standing
were first borns from second marriages and/or from polygamous marriages
from junior wives. Those who agreed were then asked to sit down leaving the group of first borns that could be called genuine ones. This was done with grades V, VI and VII pupils.

This procedure was repeated in all grade V, VI and grade VII classes at Mtendere "E" Primary School. Finally, it was ascertained that the concept of birth order or Ordinal Position was well understood by the children who incidentally were from a shanty compound school resembling in someways to the rural sample that could be used in this survey study.

The second pilot study conducted at the same school mentioned above concerned the child personality assessment questionnaire (CPAQ) adopted from Kohlmer (1980). The questionnaire consisted of 25 statements all written in English. All first and third born male pupils identified in all the grade V–VII classes took part in this exercise.

**Procedure:**

The questionnaires were distributed amongst a large number of subjects and after instructions were readout, they were told to answer according to their choices. The choices to the statements on the questionnaire can be seen in Appendix (1). The results of this pilot study showed that (a) all grade V pupils could not understand the English version of the questionnaire very well and were thus summarily disqualified from taking part in the study. (b) There was a need for each English statement to be accompanied by a local language version (Nyanja) and (c) that the number of items be trimmed to 15 as out of items 25, the subjects could not comprehend very well and four items were irrelevant to the subjects.
All this led to the formulation of the final version of the CFAQ consisting of 15 statements with Nyanja translation.

The third pilot study concerned with the testing of the parental expectations questionnaire herein called the parental description of first born males questionnaire (PDMCQ).

This questionnaire initially consisted of 25 statements all oriented toward dependency expectations. The pilot study was carried out in Kabwe about 140 km north of Lusaka. In the final analysis, only 16 statements, 10 of which were independence inclined and 6 dependence inclined, made up the PDMCQ.

Arrangements of the final study.

In May 1981, the researcher went to the five schools in Petauke where the final survey study would be conducted to ascertain the following: (a) whether the rural children understood the concept of birth order thereby establishing whether they fully knew their ordinal positions, and (b) whether the parents could have no problems answering the statements on the PDMCQ in the local language and/or in English depending on the education of the parent. The results indicated that the rural pupils at the five schools had no problem in understanding birth order and that because of the parents' low educational level, the interviews would be conducted in a local language - Nsenga the parents would answer the statements without any problem. It should be mentioned here that the parents for the pilot study at the schools were not necessarily the same parents for the final study. The parents were picked at random from the nearest villages to Nymphambe Primary School who had no grade VI or VII sons at Nymphambe Primary School.
During this trip to Petauke, the manual Skill - Sisal string making - was agreed upon by parents, teachers and the researcher. The availability of sisal at all schools, the short duration needed for the activity and the commonality of the skill in the villages thereby ensuring the availability of local village judges were among the reasons for the choice of sisal string making for the testing of hypothesis (3). It was also established during this trip that there were no standardized examinations before grade VII final selection examinations. In view of this, it was agreed that any last two tests would be used for testing hypothesis (2). After this trip, the instruments for the survey study were put in their final versions ready for the final study in the rural area - Petauke District.

**Final Studies**

- Administration of Questionnaires.

(a) The Child Personality Assessment Questionnaire (CPAQ).

This questionnaire was devised for measuring dependency as per hypothesis (1) which predicted that first born male children would be more dependent than third born male children. The questionnaire consisted of 15 statements in English with each statement translated in Nyanja which is the local Zambian language taught in the five schools. Although predominantly Nsenga speaking, Nsengas have no problem with Nyanja as it is widely spoken apart from being taught in schools. It is also the language used for all official gatherings like meetings and prayers in the Catholic and Protestant Denominations.

**Apparatus:** - The questionnaires and Ball Pens.
Procedure: - After the first and third borns were selected at each school, they were placed in one classroom. The researcher then told them to find ballpens to write with for the "game" as the study was referred to, would need some writing in ink. When all had found ballpens, they were seated according to ordinal positions first borns on one side and third borns on the other with enough space between subjects in each group to avoid copying.

The researcher then emphasized that what they were about to do was not a test that would be graded by teachers. At that stage, he emphasized that no teacher would ever see whatever they were going to do. It was then said that what they were about to do had nothing to do with secondary school selection. They were not going to be graded by teachers for what they were going to do. The whole aim of the "game", it was stressed, was to find out some of their private feelings about certain things that related to themselves. When these opening remarks were clear, the questionnaires were distributed to the subjects and instructions read out by the researcher.

The instructions read: - These statements are about you. Answer them as truthfully as possible. Do not write your name. Only write 'I' at the top right corner if you are first born and 'J' if you are third born. Choose only one alternative for each statement and write the number of the box of your choice at the end of each statement on the dotted line. The choices are shown in table (2) below.

<table>
<thead>
<tr>
<th>ALWAYS</th>
<th>TRUE OF ME (1)</th>
<th>SOMETIMES TRUE OF ME (2)</th>
<th>SOMETIMES TRUE OF ME AND SOMETIMES NOT TRUE OF ME (3)</th>
<th>RARELY TRUE OF ME (4)</th>
<th>NEVER TRUE OF ME (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
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</tbody>
</table>
Subjects were then asked to indicate the name of their school anywhere on top of the questionnaire. They were then given sometime to look at the statements before answering them to indicate to the researcher anythings they could not read properly or understand in both languages. They were also told that while in the course of answering the statements, they were free to ask the researcher if they had any difficulties as this was not a test. Talking to each other and copying from other subjects' work were however prohibited. There was no time limit to this although the researcher said that it would be appreciated if they did not take very long time as there were other 'games' to be played.

When all finished, all the questionnaires were put in an envelope bearing the school's name and CPAQ indicated on it.

Scoring:  - Scores for boxes 1-5 were as follows.

1 - Always true of me - 5 points.
2 - Sometimes true of me - 4 points.
3 - Sometimes true of me,
sometimes not true of me - 3 points.
4 - Rarely true of me - 2 points.
5 - Never true of me - 1 point.

Total Scores for first borns were then statistically compared with those of third borns using the t-test and analysis of variance.

(b) The Parental Description of first born Male children Questionnaire (PDMCQ) - Parental Expectations.

The questionnaire was designed to measure dependence and independence expectations of parents of their first born male children.
This was done in order to augment the earlier survey on dependency.

The questionnaire consisted of 16 statements of which 10 were independence oriented and 6 dependency oriented.

Procedure: The questionnaire was administered to 50 parents of first born male children who were the sample group of the survey study in Petauke District. The statements were written in simple English that could easily be translated into Naenga by the researcher to parents who could not understand English. Appendix (2) shows the questionnaire. The parents had to respond with either a 'Yes' or a 'No' to each statement. Whatever additions and explanations given by the parent did not matter as long as initially he said yes/no. To the 10 independence oriented statements, a 'Yes' indicated independence expectations and a 'No' indicated dependency expectations. To the 6 dependency oriented statements, a 'Yes' indicated dependency expectation while a 'No' showed independence expectation. Explanations and reasons for parents' responses were allowed as long as the crucial 'Yes' or 'No' response was recorded.

After all the 50 parents were interviewed, all the 'Yes' responses to the independence inclined statements (1, 2, 3, 4, 5, 6, 7, 8, 11 & 13) were added to all the 'No' responses to statements (9, 10, 12, 14, 15 & 16) which were dependency oriented. This was done because a 'Yes' to an independence statement meant the same as a 'No' to a dependence statement, both indicative of independence. Similarly, all 'No' responses to the independence inclined statements were added to all the 'Yes' responses to the dependence statements. The two responses both meant expectations for dependency, i.e. A 'No' to a statement that
in independence inclined means dependency whilst a 'Yes' to an
already dependency inclined statement confirms the dependency
expectation. Appendix (3) shows the scoring sheet.

This questionnaire also asked for information about the
subjects in areas of education, family size and whether or not they
lived with a nephew and for how long. 'Family size here meant the
number of children there was for which the first born was the male
child who served as a subject in the survey. The general educational
picture was one of a predominantly illiterate parent sample with only
one (1) form II and three (3) standard 6 parents. 19 had no formal
education of any kind with the remaining 27 parents sharing the Sub
B to standard V allotment. The complete breakdown was as follows:

Form II - 1
Standard 6 - 3 (Grade 7 equivalent)
Standard 5 - 2
Standard 4 - 4 (Grade VI equivalent)
Standard 3 - 3 (Grade V equivalent)
Standard 2 - 11 (Grade IV equivalent)
Standard 1 - 4 (Grade III equivalent)
Sub B - 3 (Grade II equivalent)
Sub A - 0 (Grade I equivalent)
Nil - 19 (no formal education)

This breakdown conspicuously denotes a general illiteracy
in the sample. Family sizes ranged from 3 - 13 children a clear
indication of large families amongst the Nsenga. On staying with
nephews, only 23 parents had stayed with nephews for durations
ranging from short to unspecified.
(c) **Academic Performance.**

Subjects: 50 first born male children in grades 6 & 7 and 30 third born male children in grades 6 & 7 aged between 13 like the first borns. Initially it was planned that for the purpose of testing hypothesis (2), it would be convenient to look at two previous standardized tests the subjects might have done before reaching the present grades. However, as indicated in the Pilot studies section, no such tests exist in the ministry of Education before the end of grade VII when there is the primary school leaving examination which also serves as the selection examination into secondary schools.

In view of this problem, it was decided that two previous end of term tests should be used for testing hypothesis (2) which predicted that first borns would excel third borns in academic performance. In the final analysis, any two previous tests were chosen for this part.

**Procedure:** Since there were disparities in tests total marks for the five primary schools, a working total of 600 marks was chosen as some schools used it for their total test marks. Infact 3 schools used 600 and two used 400 as total marks. This meant that those pupils whose marks were reading out of 400 had their marks pushed to read out of 600. If for example a subject had scored 240 marks out of 400, the recorded total for this study read 360 marks. In order to arrive at 360 marks, 600 was multiplied by 240 and then divided by 400. \[ \frac{600 \times 240}{400} = 360 \]. It should be stressed that this elevation of marks did not change anything in the results of the
subjects, for, if one subject had scored 360 out of 600, he was at level with that one who had scored 240 out of 400. All the total scores of first borns were added up and compared with those of third borns using t-test and simple analysis of variance.


(i) Background: This activity was mainly for testing hypothesis (3) which predicted that first born male children would be better at manual skills than third born male children amongst the Nsenga. The proximity of first borns to parents and the adult world would facilitate the learning of adult skills to first borns. String making is generally very common amongst the Nsenga and all other tribes in Katembe District. The making of mats, baskets, the trapping of birds and small animals and the building of huts, grainaries and Kraals demands a lot of string and fibre work amongst the Nsenga. Sisal string making is predominantly a masculine skill. Sisal string making, and in compliance with the nature of the sisal plant, demands more care than is the case with the other fibres. The final product of a sisal string very much depends on the care given at each initial stage. The type of sisal leaf picked, the type of stick used for clearing the green outer cover and the actual place used for this clearing off of the outer green cover will all determine the type of threads produced.

The final white, straight and soft threads will be possible if a clean surface of a fallen tree trunk was chosen using a stick with sharp edges and clearing the green outer cover with care. For these reasons, sisal string making provided a very good activity for testing the hypothesis. Other fibres like (Mlele, Ngobe, Chitimbe
and Nsenga) do not call for such meticulous precautions at all. Sisal, thorny edged plant usually used for fencing around schools, gardens and even houses, is found at almost every village in Chief Nyamphande's area and at all the five primary schools where this survey study was conducted. The schools have utilized this natural fencing plant for protecting their production unit fields against the pertinent and unending streams of goats and pigs.

The availability of the sisal plant at all schools was a facilitating feature in this research where time was limited owing to the many activities involved in the whole study. It should also be mentioned here that all adult men grown up within the Nsenga society should know how to make strings from sisal and other fibres as well. It is also expected that in each village, there are men more skilled than others in the making of sisal strings. This also holds true for other skills like carving, drum making, hoe and adze handle making, cooking sticks and wooden spoon carving. It is in the adult world to which first borns are so close that these manual skills are a daily routine.

**Administration of the Sisal String Making Activity**

Subjects: 50 first born male children in grades VI & VII aged between 12 and 15 and 50 third born male children of the descriptions as above.

Apparatus & materials: Scoring sheet for the researcher. All others were to be self improvised by the subjects. These were sticks for beating and clearing the green on sisal and a hard wood on which to press sisal leaf.
Procedure: A day before the subjects made the strings, the researcher asked the Headteacher or his deputy to take him to the nearest village to consult with the Headman for the provision of three sisal string experts to act as judges of the strings to be made by the subjects. Three judges were needed who fortunately were readily available at each school from the nearby village.

On the day of the activity, all the subjects at each school were assembled in a classroom where the researcher told them that the second part of the 'games' was that they should make sisal strings.

The researcher further emphasized that the work should be done individually which meant that no one should give the other any help. Again, there was no time limit to the activity but again requested the subjects to do it with in the school morning timetable. Subjects were not encouraged to make wonderful sisal strings. They were just told to make strings. This lack of direction as to how the work should be done was necessary in order that each subject's work would be a result of the subject's own care and skill, or his own carelessness and lack of skill. The possibility of elders in the village doing this for the subjects was eliminated as the work was done within the school premises during school hours.

After all initial instructions were clearly understood, the subjects left the classroom for the activity. During the activity, the researcher and one teacher toured the work area to ensure that each subject made his own sisal string. When each subject finished
his work, a label on which the subject’s name, grade and ordinal position were indicated was stapled to the sisal strings. Judges came to the school when subjects were making the strings. The researcher used this time to instruct the three judges on how to make judgements. Five categories for judging the subjects’ work were arranged: Excellent (Nabwino ngako ngako); Very good, (Nabwino ngako); Good, (Nabwino); Poor, (Nkhasako) and Bad (Uipa). In brackets are local translations of the categories since almost all the judges could not speak English well.

All labelled bunches of strings were then put in one carton box under the table in the room where judging would take place. At this time all subjects were thanked for their cooperation and told to join other pupils in their classes. The three judges were then placed in another room nearest to the room where judging would be done. They were then called in for judgements one by one. The criteria for the excellent judging category were, sisal string without any green stuff, straight, white and soft — felt soft by the judge. Bad strings would mean, dirty, green stuff on, uncared for, hard and not straight. The other categories meant the presence of one or two of the determining criteria against excellence. Only one judgement per judge was allowed for each bunch of sisal strings.

The Judgements.

When each judge entered the room, the researcher made sure that he did not see the sisal strings in the box under the researchers table. The judge was seated at an angle he could not see the sisal strings in the box. The researcher then pulled a bunch at a time and gave it to the judge for his judgement. After he judged, the judged
strings were again hidden behind the box and another bunch pulled from the box for judgement. This tedious procedure went on until all the strings were judged. The judge was thanked and told to return to his village without going back to the room where the other judges were. If he preferred to wait for his friends, he had to wait where he could not communicate with those who had not made their judgements.

The process took long enough at schools like Mwanza and Mtwanzo where there were many subjects. This part needed a lot of patience as judges took their time feeling and looking at each bunch of strings. Each judgement was entered on a scoring sheet as shown in Table (1) above.

Scoring. The five categories, excellent, very good, good, poor and bad represented scores of 5, 4, 3, 2 and 1 respectively. There were 15 possible total marks per subject from three judges if they all gave excellent judgement. Samples of sisal strings representing the five categories can be seen in Appendix 4.

Since judges decided to wait for each other at all the five schools, it was then decided that the Headteacher or his deputy should thank them as a group at the end of the exercise. The researcher took this opportunity to explain to the judges what the whole exercise was all about.

The results were then statistically analyzed using the t-test and simple analysis of variance.
B. Dependency as a function of Birth Order: An Experimental Study.

Subjects.

A total of 100 grade VI first and third born male children drawn from Chelston and Matero Boys Primary Schools served as subjects in the experiment. These two Primary schools are to the East and West of Lusaka respectively - Matero Boys Primary School is situated in a predominately high density black compound serving even children from the nearby shanty compounds. Even though Chelston Primary School is situated in a low density area, it serves children mostly from Chelston high density compound and the many shanty compounds peripheral to Chelston. The majority of the subjects were found at Matero Boys Primary School. 50 of these subjects were first borns and 50 were third borns. They were all of the same sex, grade, within the same age range and from similar socio-economic background.

The allocation of subjects to the two experimental conditions was as follows: 25 first borns and 25 third borns in the experimental condition; 25 first borns and 25 third borns in the control condition. Table (3) shows the design.

**TABLE (3) - EXPERIMENTAL DESIGN.**

<table>
<thead>
<tr>
<th></th>
<th>1st BORNS</th>
<th>THIRD BORNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPERIMENTAL</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>CONTROL</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>
The experimental study was designed to test hypothesis (1) which predicted that first borns were more dependent than third borns but this time using Schachter's (1959) contention that first borns were more dependent when anxious. This means that when faced with anxiety arousing situations, first borns are more dependent than later borns. It was the aim of this experiment to test dependency under anxiety arousing conditions between first and third born male children in Lusaka, Zambia. Selection of subjects was as for the survey study (see page 1) except that these subjects in the experimental study were all grade VI pupils.

Development of Research Instruments.

The main instrument for the experiment was a questionnaire designed to measure anxiety before and after the experiment. This was designed after Castaneda, McCandless and Palermo's (1956) Child Form of Manifest Anxiety (C.F.M.A.S.) This was designed to measure proneness to anxiety in the two groups before the experiment and also to measure level of anxiety after the experiment. The rationale for the inclusion of this was after Schachter's (1959) contention that first borns could be more anxious than thirds borns. There were 25 statements in the questionnaire to which subjects had to respond by choosing 'Yes' or 'No' against each statement, (see Appendix 5).

The other instrument was the choice response sheet (CRS) for the indication of choice on the experiment. (Appendix 4). Two stimulus stories (see section IV) were also devised for the experimental and control conditions of the experiment.
- Pilot Study: This was conducted at Tunduya Primary School in Lusaka. Results of the pilot study indicated that the word 'fetch' in the stimulus stories was not easily comprehended by the pupils who were all grade VI males aged between 12 and 14. In view of this, there was modification and the word 'collect' was used in its place for the final study.

The child form of Manifest Anxiety (CFMAS.) was administered to the first and third born grade VI pupils at Tunduya and the results from this exercise showed that the statements were well understood by grade VI pupils with no need for further modifications. A 'Yes' response on the CFMAS meant 5 points while a 'No' meant 3 points. Results of the pilot study showed a slight inclination towards the prediction that first borns would be more dependent when anxious than later borns although not statistically significant.

- The Final Study.

(a) Subjects: There were 50 first born male children in grade VI aged between 12 and 15, and 50 third born male children answering the descriptions given for first borns. These subjects were drawn from Chelston and Matero Boys Primary Schools in Lusaka to the east and west of Lusaka respectively. Matero Boys Primary is situated in Matero compound (High Density Black Compound) West of Lusaka with many peripheral shanty compounds around it that supply the school with children in addition to Matero compound itself. Chelston Primary School is situated in a low density area but is supplied with pupils from the surrounding Chelston High Density Compound for Blacks and many shanty Compounds around it. The majority of these
subjects came from Nkoro Boys Primary School. In all, there were 100 male grade VI pupils who served as subjects in this experiment.

**Experimental Design.**

This was a between matched group design. Subjects were matched on age, grade and sex: i.e. between 11 and 13 of age all grade six (VI) males assumed from low socio-economic status families. 25 first borns and 25 third borns all served in the experimental condition, while 25 first borns 25 third borns all served in the control condition. The IV for the Experimental condition was the Anxiety Arousing Stimulus (A.A.S.) while that of for the control condition was the Non Anxiety Arousing Stimulus (NAAS).

Before and after the experimental and control conditions, subjects answered items on the Child Form of Manifest Anxiety Scale (CFMAS) adopted from Centored, McCardless and Parleano (1956) with few modifications. Additionally, subjects indicated their choices on the 'Choice Response Sheet' (CRS) after the experiment immediately after answering the items on the CFMAS.

**Independent Variables:** The stimulus stories.

(i) For the Experimental Condition (A.A.S.):-

/’I am going to send you to collect some books from a room within the school. I’ll show you the room later. In that room however, I’ve placed dangerous and harmful things and to be honest with you they can do a lot of harm on you and cause a lot of pain on you. Before you go to that room, you’ll have to wait for some time./
Two rooms have been prepared in which to wait. In one room you can wait alone and in another room, you can wait together with others. It is important that you choose the room in which you can wait.

(2) For the control condition (no anxiety arousal stimulus)

I am going to send you to collect some books from a room within the school. I'll show you the room later. Before you go to that room, you'll have to wait for some time. Two rooms have been prepared in which to wait. In one room you can wait alone and in another room you can wait together with others. It is important that you choose the room of your choice in which you can wait.

Dependent Variable: Choice to wait alone or together with others.

(c) Apparatus and materials:

For the measurement of anxiety both before and after the experiment, 100 CFMAS questionnaire forms were used. There were also 100 choice response sheets (CRS) on which choices to wait alone or to wait together with others were indicated. Ball pens for subjects (self improvised) and 6 large envelopes for custody of the forms and CRS's (Appendix 6).

(4) Procedure:

(1) When subjects were assembled in one classroom, the experimenter asked them to find ball pens. When they all found ball pens, they were put into two groups of first and third borns with each group occupying a side of the classroom. The CFMAS was then distributed to both groups for the measurement of proneness to anxiety before
experimental manipulation. The instructions on the CFNAS; which stressed truthful and honest answering, frankness, that no marks would be given and that no names should be written except for ordinal positions were read out by the experimenter, (see Appendix 3). There was no time limit although experimenter stressed the importance of quick answering as there were other 'games' to be played all on that day. They had to answer 25 statements by ticking (✓) on dotted line against the statement and under a 'Yes' or 'No choice. After all had finished (some taking 10 minutes) E put the forms in an envelope marked '1st & 3rd BB', (B.E= Before Experiment) for safe custody awaiting statistical analysis.

(2) The first borns were then subdivided into two groups to serve in the experimental and control conditions. This was done for third borns as well. The first and third borns in the control condition were told to go to another room where a teacher was assigned to keep pace.

The Experimental condition: The 25 first borns and 25 third borns serving in this condition were then told to go to another room with a teacher and a pupil not involved in the experiment was brought to the experimenter for communication between the E and subjects in the other room.

The room where the experiment was conducted had a table and two chairs on each side of the table one for E and another for S. On the table was the CFNAS to which was attached the CRS. There was also a sheet of paper on which were written the two stimulus stories - A.A.S and the Non Anxiety Arising stimulus.
E then sent the messenger to call subject 1 who was the first born on the list of the group serving in the experimental group. When he entered, he was shown the chair in which he was asked to sit. E told S to relax. When this was assured, E told S that E would tell him something to which S should listen very carefully. E then narrated the A.A.S. (see b.1 above) and then told the S after he finished the story where to indicate his choice of the waiting room pointing at the CRS attached to the CFMAS. E then told S to answer the items on CFMAS first before indicating choice and showed him where he could sit to do that in the same room.

This procedure was done for all the 50 subjects in the experimental condition. The CFMAS with CRS attached to them were put in an envelope marked (2(1)E= Second forms for first borns in the Experimental Condition) and those for third borns in the (2(3)E=second forms for third borns in the experimental condition).

3. The above procedure was also followed for the control group who also answered the CFMAS statements after receiving the non anxiety arousing stimulus (NAAS). The answered scales and the choice response sheet (CRS) were then put in respective envelopes awaiting quantification and statistical analysis. All (CRS) were attached to the (CFMAS).

All the subjects were then re-assembled in one classroom for debriefing in which E explained that they would not go the room to collect the books after all. E further explained that the aim of the 'game' was to find out whether first and third borns would choose to wait alone or with friends especially after the A.A.S.
E explained that what was crucial was to find out their choices for waiting rooms after A.A.S and N.A.A.S. Subjects explained how they felt in the experimental condition with A.A.S. He then thanked the subjects, teachers and the messenger boy for their cooperation and handed the pupils over to their respective class teachers.

The responses in both groups on GFMAS were added up and compared using t-test and simple analysis of variance. For the responses on the CRC, χ² (chi square) was used.
CHAPTER 3
RESULTS

Analysis of Data

The effects of birth order on dependency, academic performance and manual skill were assessed by means of t-tests, analyses of variance and chi square. However, some aspects of dependency hypothesis involving fathers of first born did not per se warrant the use of statistical substantiation. In all statistical computations (except for $X^2$) two means of the two groups first and third borns were compared.

The results were computed by use of the computer and a hand electronic programmable calculator.

A. Survey Study: Dependency, Academic Performance and Manual Skill as Functions of Birth Order

In this section, all the three hypotheses were tested in a rural area using questionnaires and survey.

(a) Hypothesis (1)- Dependency.

In terms of the number of questionnaires and other activities per each hypothesis, this hypothesis was the major one in this study. This hypothesis predicted that first born male children would be more dependent than third born male children. To test this, a questionnaire, Child Personality assessment questionnaire (CPAQ) adopted from Rohner (1980) were administered to both groups. The Likert scale was used for scoring on the CPAQ as indicated in appendix (1). The responses made on this questionnaire were scored by assigning the highest value of 5 to the 'Always True of Me' category and the lowest value of 1 to 'Never True of Me' category. 3 was the value for the middle category, "Sometimes True of Me and Sometimes Not true of me."
"Sometimes True of me" and 'Rarely True of me' were assigned values of 4 and 2 respectively.

To assess differences in dependency of the two groups in accordance with the two ordinal positions, a t-test and an analysis of variance (one-way) were carried out. The prediction that first born male children would be more dependent than third born male children was strongly substantiated, \((t=8.3, \text{df}=98, P<.05)\) as indicated in the summary Table 4). A further analysis of variance was carried out in which the results also strongly supported the prediction, \((F=69.36, \text{df}=1, 98, P<.05)\). A summary of these results can be seen in Table 5). Accordingly, these results strongly supported the contention that birth order has a profound effect on psychological functioning, in this respect, dependency, and that this effect is greatest with the first ordinal position.

Another questionnaire (PDMCQ) was administered to the fathers or male surrogate parents of the first borns. The (PDMCQ) also called (Parental Expectations Questionnaire) aimed at assessing the fathers' expectations for their first born male children in the dimensions Dependent/Independent as can be seen in (Appendix 2). 16 statements constituted the (PDMCQ) of which 10 were Independence inclined to which a 'No' response was indicative of dependency expectations. This questionnaire operated on the Likert Scale basis with a value of 5 assigned to a 'Yes' response and a value of 2 assigned to a 'No' response. All 'Yes' responses were added and compared with all the added 'No' responses. The results indicated that fathers' expectations of their first born male children were more inclined to dependency than to independency. A summary of these results is indicated in Table 6. 468 responses out of 800 responses were for dependency expectation with 332 for independency expectations.
TABLE 4 shows Mean, Standard Deviation, Standard Error degrees of freedom and t-value for H1-Dependency using the (CPAC).

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>NUMBER OF CASES</th>
<th>MEAN</th>
<th>S.D.</th>
<th>S.E.</th>
<th>DEGREES OF FREEDOM</th>
<th>T. VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST BORNs</td>
<td>50</td>
<td>59.820</td>
<td>5.561</td>
<td>0.786</td>
<td>98</td>
<td>8.33*</td>
</tr>
<tr>
<td>THIRD BORNs</td>
<td>50</td>
<td>49.320</td>
<td>6.968</td>
<td>0.965</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*SIGNIFICANT AT .05 PROBABILITY LEVEL.
<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DEGREES OF FREEDOM</th>
<th>SUM OF SQUARES</th>
<th>MEAN SUM OF SQUARES</th>
<th>F. RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>BETWEEN GROUPS</td>
<td>1</td>
<td>2756.25</td>
<td>2756.25</td>
<td></td>
</tr>
<tr>
<td>WITHIN GROUPS</td>
<td>98</td>
<td>3894.26</td>
<td>39.73</td>
<td>69.36*</td>
</tr>
<tr>
<td>TOTAL</td>
<td>99</td>
<td>6650.51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* SIGNIFICANT AT .05 PROBABILITY LEVEL.
TABLE 6 - FATHERS' RESPONSES FOR H1: DEPENDENT?INDEPENDENT EXPECTATIONS.

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DEPENDENCE</th>
<th>INDEPENDENCE</th>
<th>= 500</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>186</td>
<td>314</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>262</td>
<td>18</td>
<td>= 300</td>
</tr>
<tr>
<td></td>
<td>= 468</td>
<td>= 332</td>
<td>= 800</td>
</tr>
</tbody>
</table>

*(1) - The 10 questions to which fathers made 500 responses divided between dependency and independency.

*(2) The 6 questions to which fathers made 300 responses divided between dependency and independency responses.

NB. Additional information was collected from parents as indicated in tables 2, 8 and 9.
TABLE 7 - EDUCATIONAL LEVELS OF FATHERS AND MALE FATHER SURROGATES.

<table>
<thead>
<tr>
<th>EDUCATIONAL LEVEL</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORM II</td>
<td>1</td>
</tr>
<tr>
<td>STANDARD 6</td>
<td>4</td>
</tr>
<tr>
<td>STANDARD 5</td>
<td>2</td>
</tr>
<tr>
<td>STANDARD 4</td>
<td>3</td>
</tr>
<tr>
<td>STANDARD 3</td>
<td>3</td>
</tr>
<tr>
<td>STANDARD 2</td>
<td>11</td>
</tr>
<tr>
<td>*STANDARD 1</td>
<td>4</td>
</tr>
<tr>
<td>SUB B</td>
<td>3</td>
</tr>
<tr>
<td>*SUB A</td>
<td>0</td>
</tr>
<tr>
<td>NIL</td>
<td>19</td>
</tr>
</tbody>
</table>

*NOW GRADES UP TO GRADE 7
Table 8 - Number of Families, Number of Children

Per family and total number of children

<table>
<thead>
<tr>
<th>Number of Families</th>
<th>Number of Children per Family</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>72</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>49</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>72</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>323</strong></td>
</tr>
</tbody>
</table>

\[ \bar{x} \text{ of children per family} = 6 \]
Table 9 - 'Loaning' of Children to Uncles.

<table>
<thead>
<tr>
<th>Stayed with Nephew</th>
<th>Did Not Stay with Nephew</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>27</td>
</tr>
</tbody>
</table>

50 Fathers and Male Father Surrogates interviewed.
B. **Hypothesis (2) - Academic Performance.**

The prediction in this hypothesis was that first born male children would have a better performance in academic work than third born male children. Test results of any two previous tests were collected from both groups and their means compared. In order to determine whether the two ordinal positions (first & third) had any effect on academic performance, a t-test and a one-way analysis of variance were carried out. The prediction that first borns would excel in academic performance when compared with third borns was not substantiated, (t-value=1.09, df=98, P/.05). A summary table for these results can be seen in table (10). A further one-way analysis of variance was carried out which showed no significant differences in academic performance between first born male children and third born male children. (F=1.190, df1, 98, P/.05) as indicated in Table 11.

The two groups of children came from predominantly illiterate families, characterized by large families and very low social-economic statuses. The mothers of these children though not investigated are far below whatever academic qualifications their husbands have. They are more illiterate than their husbands.
<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>NUMBER OF CASES</th>
<th>MEAN</th>
<th>S.D.</th>
<th>S.E.</th>
<th>DEGREES OF FREEDOM</th>
<th>T. VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST BORNS</td>
<td>50</td>
<td>3.88.220</td>
<td>138.094</td>
<td>19.529</td>
<td></td>
<td>98</td>
</tr>
<tr>
<td>THIRD BORNS</td>
<td>50</td>
<td>357.500</td>
<td>143.464</td>
<td>20.289</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

t. Value (1.09) not significant at .05 probability level
### Table 11 - Analysis of Variance for H2 Academic Performance

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Sum of Squares</th>
<th>F. Ratio</th>
<th>F Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>23592.960</td>
<td>23592.960</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>98</td>
<td>1942947.090</td>
<td>19325.990</td>
<td>1.190</td>
<td>0.278</td>
</tr>
<tr>
<td>Total</td>
<td>99</td>
<td>1966540.040</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F. Ratio (1.190) Not Significant at Probability Level of .05
(c) Hypothesis (3) - Manual Skill.

This part was the final aspect of the survey study conducted in the rural area. The hypothesis predicted that first born male children would be better at manual skills than third born male children. The manual skill activity was sisal string making. Three judges assessed each sisal string bunch made by each subject in the two groups - first and third borns. The scoring was based on the Likert Scale with categories Excellent, Very good, Good, Poor and Bad receiving values of 5, 4, 3, 2 and 1 respectively. The criteria used for determining each category were described in the previous chapter on methods.

In order to determine the relationship between birth order and manual skill, a t-test and an analysis of variance (one-way) were carried out. The prediction was confirmed showing a profound effect of birth order on manual skill favouring first born male children, (t-value=4.46, df=98, P<.05). Table (12) shows a summary of these results. Further supportive evidence for the hypothesis was indicated by the analysis of variance as shown in table (13) as, (F=19.860, df=1,98, F<.05). This significant conclusion of results in this hypothesis does confirm the contention that proximity to the adult world, perculiar to the first borns facilitates the learning of manual skills that are sex specific.

B. Section (ii) - Dependency as a function of birth order:

An Experimental Study

This section was a continuation of hypothesis (1) on dependency which predicted that first born male children are more dependent than third born male children. However, a slight addition to the hypothesis in this section was that first born male children would be more
### Table 12 - Showing Mean, Standard Deviation, Standard Error and T-Value for (H3) - Manual Skill

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>NUMBER OF CASES</th>
<th>MEAN</th>
<th>S.D.</th>
<th>S.E.</th>
<th>DEGREES OF FREEDOM</th>
<th>T-VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST BORN</td>
<td>50</td>
<td>9.960</td>
<td>3.090</td>
<td>0.437</td>
<td>98</td>
<td>4.46*</td>
</tr>
<tr>
<td>THIRD BORN</td>
<td>50</td>
<td>7.040</td>
<td>3.452</td>
<td>0.488</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05 probability level
TABLE 13 - ANALYSIS OF VARIANCE FOR (H3)-

MANUAL SKILL

<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DEGREES OF FREEDOM</th>
<th>SUM OF SQUARES</th>
<th>MEAN SUM OF SQUARES</th>
<th>F. RATION</th>
<th>P. PROBABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>BETWEEN GROUPS</td>
<td>1</td>
<td>213.160</td>
<td>213.160</td>
<td>19.860*</td>
<td>0.000</td>
</tr>
<tr>
<td>WITHIN GROUPS</td>
<td>98</td>
<td>1051.840</td>
<td>10.733</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>99</td>
<td>1255.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*—SIGNIFICANT AT .05 PROBABILITY LEVEL
dependent than third born male children when anxious, (Schachter, 1959).

It was also found necessary in this section to measure levels of anxiety in the two groups both before and after the experiment. In connection with this a Child Form of Manifest Anxiety Scale (Castaneda, McCandless and Palermo; 1956) was used for the measurement of anxiety both before and after the experiment. The questionnaire was based on the Likert scale with responses 'Yes' and 'No' for which values 5 and 2 were assigned respectively.

(a) - Measuring level of anxiety before the Experiment with the Child form of Manifest Anxiety Scale (CFMAS).

It was expected that first borns would be more prone to anxiety than third born male children. To measure this, the CFMAS consisting of 25 statements was administered to 50 first born male children in grade VI and 50 third born male children of the same grade.

The subjects had to respond with either a 'Yes' or a 'No' to each statement to which basing on the Likert scale, a value of 5 was assigned to a 'Yes' response and a value of 3 assigned to a 'No' response.

To examine the effect of birth order on proneness to anxiety, a one-way analysis was carried out. The results showed that the expectation was not confirmed as the F-ration was not significant, (F=1.83, df3, 96, P/.05). Table (14) indicates the summary of those results.

(b) - Measuring Dependency After Experimental Treatment

Arising from hypothesis (1) which predicted that first born male children would be more dependent than third born male children, it was further hypothesized in this section that in anxiety arousing situations,
<table>
<thead>
<tr>
<th>SOURCE OF VARIATION</th>
<th>DEGREES OF FREEDOM</th>
<th>SUM OF SQUARES</th>
<th>MEAN SUM OF SQUARES</th>
<th>F. RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>BETWEEN GROUPS</td>
<td>3</td>
<td>1490</td>
<td>496.66</td>
<td>.</td>
</tr>
<tr>
<td>WITHIN GROUPS</td>
<td>96</td>
<td>25965.16</td>
<td>270.47</td>
<td>1.83</td>
</tr>
<tr>
<td>TOTAL</td>
<td>99</td>
<td>27455.16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F. RATION (1.83) NOT SIGNIFICANT AT .05 PROBABILITY LEVEL
first borns would be more dependent than third borns. In the experimental group, anxiety was aroused by providing the subjects with an anxiety arousing stimulus (see previous chapter on methods) and then asked to make a response choice of either waiting alone or together with others.

To examine the effects of birth order on dependency after arousal of anxiety, a chi square statistic was carried out. The results confirmed the prediction that order of birth had a profound effect on dependent behaviour after the presentation of an anxiety arousing stimulus, \((X^2=9.69, \text{ df}=1, P<.05)\). A summary table (15) indicates this significant difference between the two groups on dependent behaviour after the presentation of an anxiety arousing stimulus.

The same procedure was repeated to a control group which did not receive the anxiety arousing part of the stimulus. The prediction that first borns would be more dependent than third borns was not confirmed using the chi square statistic \((X^2=0.08, \text{ df}=1, P>.05)\). Table (16) shows the summary of these insignificant results. The significant differences between the two groups in the experimental condition (Table 15) clearly indicated the birth order effect on dependent behaviour after presentation of the anxiety arousing stimulus.

(c) - Measuring anxiety level after experiment using the CFMAS

The basic assumption in this section was that when first born experimental subjects were compared with third born experimental subjects on level of anxiety after the experimental condition in which the A.A.S. was provided, these two groups would show a greater level of anxiety than the first born versus third borns subjects in the control
### Table 15 - Chi Square Value for (H1) - Measuring Dependency Experimentally

(EXPERIMENTAL GROUP).

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>TOGETHER</th>
<th>ALONE</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST BORNS</td>
<td>0 = 19</td>
<td>0 = 6</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>E = 13</td>
<td>E = 13</td>
<td></td>
</tr>
<tr>
<td>THIRD BORNS</td>
<td>0 = 7</td>
<td>0 = 18</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>E = 12</td>
<td>E = 12</td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>26</td>
<td>24</td>
<td>50</td>
</tr>
</tbody>
</table>

$x^2$ value = (9.69) significant at .05

Probability level (with 1df).
TABLE 16 - CHI SQUARE VALUE FOR (H1) - MEASURING
DEPENDENCY EXPERIMENTALLY.

CONTROL GROUP

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>TOGETHER</th>
<th>ALONE</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST BORNS</td>
<td>0 = 11</td>
<td>0 = 14</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>E = 10</td>
<td>E = 10</td>
<td></td>
</tr>
<tr>
<td>THIRD BORNS</td>
<td>0 = 9</td>
<td>0 = 16</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>E = 15</td>
<td>E = 15</td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>20</td>
<td>30</td>
<td>50</td>
</tr>
</tbody>
</table>

\[ x^2 \text{ value} = (0.08) \text{ not significant at .05} \]

PROBABILITY LEVEL WITH (1df)
condition treated with N.A.S.S. (No Anxiety arousal stimulus). To measure this assumption, the same C.F.M.A.S. was re-administered to both groups after the experiment.

In order to establish whether any significant differences could be found between the two experimental conditions in the subjects' level of anxiety, two t-tests were carried out. The results showed a confirmation of the assumption with the experimental condition showing \( t\)-value=4.15, \( df=48, P<.05 \) and the control group showing insignificant results, \( t\)-value =1.33, \( df=48, P>.05 \). A summary table appears in table (17). A further analysis of variance was carried out to determine whether any significant differences existed between the two groups. The results show a reliably very high significant difference between the two groups, \( F=21.50, df=3, 96, P<.05 \). A summary table showing this substantiation appears in Table (18).

Further 5 t-tests were carried out to determine whether any significant differences existed among the 5 groups in the experimental and control conditions including all first borns in both conditions versus all third borns in both conditions. Apart from the first born controls vs the third borns experimental which showed an insignificant \( t\)-value of -10.61, all the other four (4) \( t\)-values showed significant differences between the groups. A clear summary of these results appears in table (19).

Section (iii) - A Summary of Results

In general, the results of this study support the major hypothesis: First born male children are more dependent than third born male children. This is substantiated by looking at statistical test.
TABLE 17 - T-VALUES FOR (H1) - MEASURING ANXIETY LEVEL AFTER EXPERIMENT USING THE C.F.M.A.S.

(EXPERIMENTAL AND CONTROL GROUPS)

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>EXPERIMENTAL</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST BOMS VS THIRD BOMS</td>
<td>4.15*</td>
<td>1.83</td>
</tr>
</tbody>
</table>

FIRST BOMS VS THIRD BOMS
### Table 18 - Analysis of Variance: Measuring Anxiety Level After Experiment Using the C.F.M.A.S.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Sum of Squares</th>
<th>F Ration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3</td>
<td>4267.39</td>
<td>1422.46</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>96</td>
<td>6349.96</td>
<td>66.14</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>99</td>
<td>10617.31</td>
<td></td>
<td>21.50*</td>
</tr>
</tbody>
</table>

*Significant at .05 Probability Level*
**TABLE 19 - T-VALUES FOR 5 GROUPS: MEASURING ANXIETY LEVEL AFTER EXPERIMENT USING C.F.M.A.S.**

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>1ST BORNS (EXPERIMENTAL) VS 3RD BORNS (CONTROL)</th>
<th>1ST BORNS (CONTROL) VS 3RD BORNS (EXPERIMENTAL)</th>
<th>3RD BORNS (EXPERIMENTAL) VS ALL THIRD BORNS</th>
<th>T-VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.38*</td>
<td>-10.61</td>
<td>8.80*</td>
<td>3.35*</td>
</tr>
</tbody>
</table>

*Significant at .05 probability level with (48 df).*
results for measuring dependency using the CPAQ. (t-value = 8.33, df=98, P/.05) and (F=69.36, df=1,98, P/.05). Tables (4) and (5) give summaries of these results. The results obtained from using the parental expectations of their first born male children also indicate that fathers and male surrogate parents show a greater inclination towards dependency expectations. Table (6) gives a summary of this substantiation.

The experimental measurement of dependency also shows results that are consistent with the prediction that first born male children are more dependent when faced with anxiety arousing situations. (X²=9.69, df=1, P/.05) confirm the prediction. Tables (15) show the summaries of these results.

The hypothesis on manual skill which predicted first borns to excel third borns in manual skill was significantly confirmed, (t-value=4.46, df=98, P/.05), with (F=19.860, df=1,98, P/.05) as indicated in Tables (12) and (13). The only hypothesis that was not confirmed using t-test and simple one-way analysis of variance was the one on academic performance which predicted that first borns would be better performers in academic work than third borns (t-value =1.09, df=98, P/.05) and (F=1.190, df=1,98, P/.05). Sufficient reasons for this lack of confirmation follow in the subsequent chapter. One other area though not particularly central to the study concerned itself with the measurement of anxiety both before and after the experimental conditions. To measure this anxiety, the Child Form of Manifest Anxiety Scale (Casteneda, McCandless and Palermo, 1956) was used. Using a simple one-way analysis of variance for responses on CFMAS before the experiment, no significant differences between the two groups were found (F=1.83, df=3.96, P/.05). The summary of these
results is indicated in Table (14). However, after the experimental condition, very significant differences were found between the two groups' level of anxiety using both the t-test and the analysis of variance. (t-value = 4.15, df = 48, P < .05) and (F = 21.50, df = 3, 96, P < .05). Summaries of these results are indicated in Tables (17 and 18).

In general terms then, these results are consistent with the Birth Order theory contention that order of birth importantly effects the psychological functioning of an individual. Finally, the summary of all mean scores for all hypotheses appears in Table 20.
<table>
<thead>
<tr>
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**TABLE 20 - Final Scores for All Hypotheses**
CHAPTER 4 DISCUSSION.

SECTION (1) Introduction.

In this study first born and third born male children were compared on three main hypotheses involving dependency, academic performance and manual skill. An additional comparison to the main hypotheses was about anxiety, levels of anxiety before and after the experimental study of dependency. On all aspects of the study, first born children were expected to excel third borns.

(a) In the survey study involving dependency, first borns were significantly more dependent than third borns. \( t = 8.3, \text{df} = 98; P < .05; F = 69.76, \text{df} = 1, 98, P < .05 \). Ordinal position in this respect showed a clearly identifiable influence on psychological functioning.

(b) The other area investigated in the survey study concerned itself with academic performance. In this respect the two means showed a difference, (First borns \( \bar{X} = 388.22 \); Third borns \( \bar{X} = 357.50 \)) statistical analysis of the data using t-test and analysis of variance did not show any significant differences in academic performance between the two groups \( t = 1.09, \text{df} = 98, P > .05; F = 1.90, \text{df} = 1, 98, P > .05 \). This result was very interesting because it was in a completely new direction from what almost all research findings in the west have found: that first borns perform better than later borns.

(c) The last activity in the survey study was a manual skill one arising from hypothesis (3) in which first borns were
expected to excel third borns in manual skill. As was expected, first borns significantly excelled third borns in manual skill, \( t = 4.46, \text{ df} = 98, \ p \leq 0.05, \ F = 19.860, \text{ df} 1,98, \ p \leq 0.05 \).

Additional information was collected from fathers and father substitutes of all first borns in the survey study. This additional information concerned (a) the father's expectations for their first borns in respect with dependency/independency expectations. It was found out here that these fathers expected their first borns to be dependent individuals, (468/800 responses) favouring dependency expectations. Further more, the educational levels of the fathers were also investigated. Out of 50 fathers, a total of 43 had educational levels below grade VII with 19 answering the category of no education at all. These findings showed a general illiteracy amongst the fathers of the first borns in the survey study. Another additional information sought from the fathers was about family sizes in which it was discovered that the first born sample of the survey study came from very large families. The minimum number of children per each family was 3, with 13 as the maximum number of children per family. Finally in this section, loaning of children to uncles was also investigated. The findings here indicated that the 'loaning' of nephews to their uncles was not as common as it was expected to be (23/50) fathers had nephews staying with them with fathers never having stayed with nephews.
It should be mentioned in this section on additional information that even if the socio-economic-statuses of the fathers were not investigated, these fathers belong to the lowest possible social-economic-status as they are from a society of simple subsistence agricultural peasantry living in typical rural areas characterized by simple village lifestyles. Another part to mention is that the wives of the fathers though not investigated and not even central to the research, had lower educational levels than their husbands as illiteracy is more pronounced among women than among men in the Msenga culture.

(d) The second part of this study involved measuring dependency experimentally. Two additional pieces of information were collected. These two were about the level of anxiety in first and third born male children before and after experimental manipulation.

The expectation that first borns should be more prone to anxiety was not confirmed, \( F = 1.38, \text{df} = 3.96, p > .05 \). However, after experimental manipulation, first borns showed a greater level of anxiety than third borns, \( t = 4.15, \text{df}=98, p < .05 \). In the experimental situation in which anxiety was aroused experimentally, the expectation that first borns would be more dependent than third borns was reliably confirmed, \( \chi^2 = 9.69, \text{df} = 1, p < .05 \).

The general picture that emerges from this study is one that supports the contention that ordinal position with its attendant psychological and sociological factors does affect
the psychological functioning of individuals. It was also found out on this study that when first borns are presented with anxiety arousing stimuli, they tend to be more dependent than third borns. The relationship between birth order and academic performance in the study provides an interesting psychological finding vis-à-vis the abundantly confirmed research findings in the West that first borns perform better than later borns in academic work. Another aspect of the result of this study was that no differences were found between first and third borns in the level of anxiety before the experimental manipulation. What was scientifically significant to the findings, is the realization that personality development from the birth order theory is relevant not only to western nuclear families but also to African matrilineal and extended families.

Section 2 Interpretation of Results

Hypothesis 1: Dependency as a function of birth order

The finding on this hypothesis confirmed the prediction that first borns are more dependent than third borns. This finding was in line with other research findings in the West (Schachter, 1959; Hurlock, 1956; 1974; Kammeyer, 1967; Sears, et-al, 1957; Sears, 1950; Jelliffe and Bennett, 1975). There are certain reasons why the Nsenga first born males were more dependent than third borns. First, mother child interaction seems to be an important factor which facilitates the development of dependent behaviour in the first borns in the Nsenga family.
There is a reason why the Nsenga mothers are overprotective and overcaring for the first when the first child is born, there emerges a particular mother. Child interaction which facilitates more dependency in first borns than in later borns. The relationship which exists between the Nsenga mother and her first born child is one of attachment. The mother is always handy to the child. It is during this time that the survival of the child is ensured. This hope for the child's survival creates an attachment for the mother to her child more than to any other subsequent child. The mother is at one with the child, sensitive to his signals and satisfying his needs almost before he is aware of them.

The child is never isolated from human contact and the breast while being used as a source of food, is also used as a source of comfort. This interaction includes sleeping arrangements in which the child sleeps quite close to the mother and quite often on the mother's belly if it shows any signs of discomfort. These sleeping arrangements together with the attendant nurturant behaviours of mothers of first borns offer maximum contact-comfort to the child which as other researchers, e.g. (Kammeyer, 1967, Jelliffe and Bennett, 1975; Whiting, 1974; Sears, et-al, 1965) say, facilitate the development of dependent behaviours in the child.

In their effort to ensure the survival of the first borns, Nsenga mothers are additionally very sensitive to any signs of pain and discomfort in their first borns children. To ensure a
continuity of comfort in the child, feeding is on a continuous schedule in which the child is fed at all times whenever and wherever the child shows signs of discomfort. Here, the mother uses the breast for both feeding and comfort. This leads to the mother's reinforcement of dependent behaviours in the child. The association of hunger and gratification with supportive maternal behaviours tends to lead to the development of an acquired drive for which dependent behaviours are appropriate rewards. This point has also been substantiated by researchers e.g., (Whiting, 1944; Sears, et-al, 1965).

In the Nsenga society, barrenness is looked down upon and highly ridiculed. For this reason, the first conception is given a very high regard and thus marks the parents' entry into proper a childhood status.

The tension on both sides of the parents can be seen as creating a kind of psychological environment that creates a very high expectation in the parents for the arrival of the first born. This high expectation might affect the mother/child interactions when the child is born in such a way that the mother becomes overprotective and overcaring for the survival of the child. This type of mother-child interactions arising from the high anxiety for the arrival of the first born child, might facilitate the development of dependency in the first borns.
The prolonged breast feeding amongst the Nsenga may be another factor for the development of dependent behaviours. Amongst the Nsenga, it is a common fact that first borns are breast fed for longer periods than later borns. This point has been supported by Whiting and Child (1953), who working amongst the Kwoma, very similar with the Nsenga child-rearing practices, found that consistent breast-feeding, physical proximity to parents and an endless contact with the mother facilitated the development of dependent behaviours in Kwoma Children. Thus, the Nsenga child grows with the sense of conditioned feelings of attachment as a result of the rewards from the mother. Generally speaking, the dependency in first born Nsenga children should be seen as having been established and maintained through the selective application of reinforcement by mothers. Wiggins (1971) agrees with the point that an individual's reinforcement history facilitates the emergence of dependent behaviours.

Since the Nsenga child is over mothered, it may seem unlikely for such a child to acquire necessary skills to provide a substitute for mother. Later born Nsenga children, who grow in an environment of minimal interaction with their mothers, seem to develop other substitutes for security other than the mother. This in itself should facilitate the development of independent behaviours in later borns. The later borns have other peers and elder siblings to rely on, which point further facilitates their independency. Later borns amongst the Nsenga
are less mothered and less reinforced. They are less attached to their mothers than firstborns, which point should help to explain why they are less dependent than firstborns.

Thirdly the nature of weaning as practised in Nsenga maybe a factor contributing to the development of dependency in firstborns more than in thirdborns. The withdrawal of new turbulent behaviours by Nsenga mothers is sudden and severe and is a great shock particularly so to the child who has been greatly attached to the mother - the firstborn child. While weaning per se does not necessarily facilitate dependency, harsh weaning preceded by overmothering should facilitate the consolidation of dependent behaviours in the child who has been initially exposed to overprotection and overmothering. Other researchers (Wober, 1975; Wiggins, et-al, 1971; Ritchie, 1943; and Stefamszyn. In Munro, 1963) also support the contention that weaning which follows attachment of the child to the mother is a contributing factor for the development of dependency.

The firstborn Nsenga child who has been reared with maximum attention is required, suddenly, through weaning to give up his initial infant dependence tendencies. This should mean the child's experiencing anxiety and frustration. Since dependence is one of frustration behaviours, it might be correct to explain weaning amongst the Nsenga which is sudden and harsh as one factor that facilitates the development of dependent behaviours in firstborn children. Research findings in African, e.g., (Whiting and Child, 1953; In-Munroe and Munroe, 1975; Child and Ritchie, 1943) all are agreeable on the fact
that harsh weaning only strengthens the child's dependency needs. Harsh weaning entails severe detachment from the mother after a period of great attachment. The severity with which a child experiences this detachment should be explained in terms of the nature of mother-child interactions before the detachment at weaning. Since the Nsenga first born has been said to be highly attached to the mother through the mother's nature of reinforcing behaviours, it might be said here that the loss of such attachment as a result of the harsh and sudden weaning might facilitate dependence. Weber (1975) stresses the point that severe detachment from the mother would at weaning be a blow to the development of a secure personality. By implication then, an insecure personality could also be one that is dependent. The curtailment of indulgent behaviours by Nsenga mothers - through harsh and sudden weaning is here seen as having repercussions of the first borns favouring the facilitation of dependent behaviours.

Finally, socialization process among the Nsenga may also encourage the development of dependence. The Nsenga cultural ethos emphasizes cooperation and sharing, including obedience and compliance all of which presuppose the development of a conforming adult personality. Since first borns especially if they are males - are seen as conservators of culture, they are expected to acquire those cultural values more than later borns. The expectations of parents for their first borns to be heirs and leaders of subsequent siblings makes first borns more compliant and dependent on adults. This might also facilitate the development of more dependency in first borns than in later
borns. Indeed, additional information in this study collected from fathers of the rural sample of first borns indicated that, the fathers expected their first borns to be more dependent than later borns. MacArthur (1973) working amongst the Nsenga, showed that because of the socialization processes amongst the Nsenga, they were more dependent that the Eskimos who had a different pattern of socialization.

Other research findings on Socialization in Africa (Bethlehem, 1975; Munroe and Munroe, 1972; Wiggino, et-al, 1971; Barry, Child and Baron, 1959; Klingelhofer, 1971) stress the point that among many African societies, of which the Nsenga are one, socialization generally includes pressures towards compliance and that obedience is a desirable trait in children. This trait is more desirable in first born children amongst the Nsenga than in later children because of the anticipated responsibilities for the first borns.

Thus, the dependency hypothesis has been interpreted in terms of the experiences mothers go through before the birth of the first child and the expectations they have for such a child. The differential treatment offered to the first child in the parents' efforts to ensure the survival of the first born has also been discussed as contributing to the development of dependence. Harsh and severe weaning and the socialization process amongst the Nsenga have also been speculatively used as factors that facilitate the development of dependent behaviours in first born male Nsenga children.
(2) **Hypothesis 2. Academic Performance as a function of Birth Order: Discussion.**

The findings did not confirm the predicted expectation that first borns would excel over third borns in academic performance. These results disagreed with other research findings (Sampson, 1965; Altuw, 1966; Kammeyer, 1967; Schachter, 1959; 1963; Murray, 1971; and Zeman, Stewart, Capra and Dittes and Nicholas - In Sampson 1965), on the same hypothesis in the west which all agree that first borns have academic eminence over later borns.

Circumstances in the West favouring the first borns over later borns on academic performance include the abundance of facilities parents have before the arrival of other children and the kinds of interactions first borns have with the parents. Specially the later factors are seen as favouring the first borns' verbal proficiency conducive to academic work. Parental pressures to achieve and the conforming nature of first borns also favour them to achieve higher academic performance than later borns. Parental emphasis on education and their expectations for first borns to achieve more academically make first borns very sensitive to parental wishes and demands and consequently motivate them to do better in school work than later borns who are not subjected to some of these expectations and pressures.

Although it is not immediately clear as to why the Nsenga first borns did not excel in academic performances than the
third borns, the following factors seem to be plausible. First the verbal stimulation the first borns have do not necessarily help them perform better at school than third borns because, the school system uses English as a medium of instruction which is different from their mother tongue. When they start schooling the verbal facilities of the first and the third borns are the same so far the English language is concerned.

The second factor seems to be the size of the family in the Nsenga community. The Nsenga children grow within very large families which if not from the same sibship, are a result of the extended family relationships. In large families, there seems to be less emphasis through child rearing of the main objectives in education. Emphasis on individual development is minimal and this does not facilitate high motivation for educational attainment. In these large Nsenga families, the child, irrespective of birth order finds less opportunity to participate in the family's discussions and decisions, to be allowed to express his opinions. What comes out in large families is that they operate on a close economic margin where necessity makes cooperation a virtue. The individual's efforts in the Nsenga large family situations are subjected to the modifying forces of the behaviour of other family members that determine, what one can do or cannot do. Since Western Education school work demands one's efforts it seems probable to speculate that what the large
family offers to children in the Nsenga group does not facilitate differentiated academic performance inspite of differential mother-child interactions as a result of ordinal position. Extensive investigation on effects of family sizes on academic performance and how large families have adverse effects on children's performance in school include (Bossard and Saiger, 1952; Kahl, 1953; Cicirchli, 1967; Munro, 1967; Feinberg, 1953; Wagner, et.al, 1979; Sulton-Smith and Rosenberg, 1970 - In Mitchel and Schoolers, 1973; Mehryat, 1972). The finding that large families do not facilitate better academic performance is consistent throughout these findings. In the Nsenga situation where even the socio-economic status of these large families is low, one would speculatively conclude that differential treatment accorded to first borns might favour such children, perhaps, in cultural specific phenomena and not in academic performance as the finding indicates. The combination of a large family and a low socio-economic status is also said (Anastasi, 1956) to be negatively related to academic performance.

The planning for children in the Nsenga large family system does not have much to do with achievement motivation. Their ambitions relate to a child who will cooperate and live successfully in a communal society. This in itself, may play a weak role in preparing the children irrespective
of ordinal positions for academic work which calls for high achievement motivation based on individual performance.

Thirdly, the parents’ low educational level might contribute to the lack of differences between first and third borns in academic work. Parents of the first and third borns investigated were found to have very low educational level and in some cases none at all. The Nsenga home of low education level parents should be seen as not giving sufficient motivational encouragement to the children since the parents themselves are not fully conversant with the intricacies of Western Education. Infact, research evidence exists showing that children of parents with low academic achievements have the lowest academic achievement and perform lowly in school. (Anastasi, 1956). This indicates that even if the Nsenga first born is over mothered and given maximum encouragement to achieve, perhaps, this encouragement is oriented toward cultural specific achievements of which western education mostly unexperienced by parents does not fit. It is a commonly accepted contention that even if the child has internal motivation to achieve, external sources of evaluation and reward are also important. The external source of incentive value for the child, like the approval of others, forms a strong habit of striving for proficiency in the child.
Among the Nsenga, parents might encourage children to go to school, but, as can be envisaged, it is not enough to just encourage a child to go to school without being able to check on the child's performance and thereby give relevant help and encouragement. It might not be enough for Nsenga parents to just tell their children that it is good to be educated. This encouragement could be more meaningful if the parents themselves had a basic education upon which to base their encouragement and for the children to adopt as a basic model for their academic aspirations. Katz (1967) strongly argues that for the school habits to be maintained, parents' standards and values of achievement in academic work have to be internalized by the child. Internalization does not take place until strong, externally reinforced achievement habits have developed. In this study, both first and third borns lacked these external reinforcers in academic performance since the parents, no matter what interaction they had with the child, lacked the basic education and probably might have problems encouraging what they are not conversant with.
(3) **Hypothesis 3.** Manual Skill as a function of Birth Order. Discussion

The finding confirmed the prediction that first born male Nsenga children would have a better performance on manual skills than third borns. Specific research findings dealing with manual skill and birth order are yet to come by. However, literature showing the pattern of father-child relationships according to birth order is abundant, (Kanmeyer, 1967; Sears, et.al., 1957; Sampson, 1965).

The Nsenga first born male child has a close relationship with his father as from **weaning** to adulthood. Because of this relationship emphasizing proximity with the male parent exposes the first born to the adult world and adult norms more than the third born male child. Parents are also seen as assigning a position of responsibility to the first born male child among the Nsenga by having him play the **foreman role** relative to the subsequent siblings. Among the Nsenga, the assignment of roles is sex specific. By implication this should be seen to mean that the first born male child is under pressure to learn the roles that he will have to play as an adult and as the parent surrogate to other children. As he grows, the first born's model for identification becomes his father.

Male adults among the Nsenga do a lot of sisal work for various activities outlined in earlier chapters. The first borns'
nearness to the fathers and the adult world should probably facilitate their better acquisition of manual skills of which sisal string making is one. By virtue of their nearness to the adult world, first borns are in the Nsenga society exposed to various manual and masculine skills.

Further more, the pressures upon the first borns for responsibility among the Nsenga, as is the case in many other cultures should give the first borns an advantage over later borns in the acquisition of skills since it will be their responsibility later to train other children in the families. One of the masculine responsibilities is to ensure that the family has mats, baskets and other string crafts. Manual skill has a social status among the Nsenga community. Boys lacking in these skill suffer a great ridicule and might find themselves with problems of getting married. The worry for such ridicule should probably be greater in first borns than in later borns as the first are charged with responsibilities to keep the families when parents become old. It was said earlier that first borns among the Nsenga are under pressure to be adults earlier than later borns. It would be a safe speculation to relate this pressure with an early acquisition of masculine skills of which sisal string making is one. Since first borns amongst the Nsenga are also seen as holders of future expectations of parents, by implication, this should place them in an advantageous position in the learning of sex - role skills than could be the case with later borns as the finding shows. In the Nsenga society, a male leader is expected to display some kind of excellence in
in certain skills including manual-string making. In the Nsenga multiparous families, levels of expectations for the male children come from the father. In this regard, earlier studies (Bosward and Sanger, 1952; Lavoie - In Wagner, et.al, 1979) indicate that first borns acquire more adult role behavior from fathers than later borns. Nsenga first borns receive high parent-surrogate training and make strong identification with the same sex parent.

Researchers (Kohlberg and Nash - In Munro, 1967) have also indicated that the father's responsibility for discipline and moral education decline as families increase. The opportunity in later male children for identification with masculine qualities is also reduced. This also holds true amongst the Nsenga as seen in the third borns lack of proficiency in manual skill - visal string making.

Finally, the nature of socialization amongst the Nsenga with its customary sex division of labour that requires fathers and sons work together as do mothers and daughters should be seen as a contributing factor to first borns' better performance at manual skills. From an early age, the male child works with the father and comes under his tutelage among the Nsenga. This tutelage is greater for first than for later borns - a factor which enables first borns to acquire more on manual skills emphasizes values of social maleness and femaleness in emphasizing father-son and mother-daughter relationships. Since first borns are at a greater advantage in this relationship with parents, it was not surprising therefore to find them better in manual skills than later borns. Zhou (1980) working among the Ngoni found better........
masculine skills among father present boys than father absent boys. If mere presence of a father irrespective of birth order made a difference, it should not be surprising that such a presence with its attendant father-son interactions amongst the Nsenga involving first born male children, put them in an advantaged position in manual skills.

Thus, proficiency in manual skills for Nsenga first born males children has been interpreted in terms of the father-son interactions, parental expectations and pressures on the first borns for the acquisition of adult status earlier than other children. Above all, the first born's nearness to the adult world and the socialization for sex-role skills have been identified as crucial factors explaining the first borns' proficiency in manual skills. The expectation of assumption of responsibilities with the family has also been discussed as facilitating the first borns' better performance on manual skills than third borns.
(B) Dependency as a Function of Birth Order: An Experimental Study

This section was an extension of hypothesis 1 in which it was predicted that under anxiety arousing situation, first borns would be more dependent than third borns. In this respect, the hypothesis was clearly confirmed. As an additional part to this section, levels of anxiety were measured both before and after the presentation of the anxiety arousing stimulus (AAS). In this section as in the above, the data showed that first born's level of anxiety was higher than the third borns after presentation of the A.A.S., no significant differences in anxiety levels were found between them. The type of anxiety arousing stimulus used in this study has already been described in the section on methodology, but for the sake of this section, it can only be mentioned that the experimental group was to collect books from a room where harmful things had been allegedly placed while the control group were to collect books from a room without the alleged harmful things. In both groups, choice about whether to wait alone or together with others before going to the rooms was to be made.

These results agreed with those of Schachter (1959) who using the threat of electric shock on first and later borns found first borns to be more dependent (choosing to wait with others) more than later borns. Using food deprivation as the A.A.S., Terrace (In Bellor, 1957) found similar results.
showing first borns as more dependent than later borns.

Danuta (In Beller, 1957) also came up with results showing first borns as more dependent than later borns using influencibility as an aspect of dependent behaviour. Beller (1957) concluded that dependent behaviours will be more manifested in first borns under conditions of disturbance and emergency than in later borns.

Using electric shock as A.A.S., Weller (1964) also found that first borns were more dependent than later borns. Torrace (In Watson, 1978) shows that jet pilots who were first borns engaged the enemy less often than later borns and reported more anxiety over flying. Adriech (On Watson, 1978) also reports that first born divers were more frightened of being under water than later borns, and did not carry out their military tasks - laying mines, fixing nets and listening devices - either as quickly and as reliably as later borns. Anxiety said to be the factor in the first borns' low performance in these military tasks.

Other interesting research findings come from Wilkinson (In Warren, 1966) who after threatening first, only and later borns with hypodemic injections and severe alteration in the glucose level of the blood, but asking them to choose to wait alone or in company, found first and only children preferring to wait with other which was interpreted as dependency.
A multitude of other findings (Sameroff and Zimbardo; Ehruld and Ralbie; Dittes; Arrowood and Anoroso; and Radloff - In Warren, 1966) all show a general inclination of first borns towards affiliative or dependent behaviours and showing stress and anxiety in situations of disturbance and emergency. Another very interesting finding outside the laboratory comes from the November 9-10 New York City Blackout from 3.30 to early wee hours of the 10th of November, 1967. For example, Lucker, Honosoritz and Lanyon (In Wiggins, et.al; 1971) found that first borns had indicated they had been more anxious during the episode than later borns. Nisbet (In Wiggins et.al; 1971) says that first borns are more prone to deal with their fears by affiliating with or depending on others. Wiggins, et.al;1971) state that the affiliative effect was more pronounced for first than for later borns and that first borns find the prospect of physical pain more fear inducing than later borns.

The behaviour by first borns to affiliate and be with others is said to reduce the stress experienced in the situation, a view well supported by Lucker, et. al., (In Wiggins, 1971). Schacter (1929) asserts that when danger or pain lurks in the offing, first borns want to share their anxiety with others by being with them.

The development of dependent behaviour in first borns has been discussed in the section on dependency. In order to
avoid repetition, it should be stressed only here that first
borns develop dependency as part of their personality which
may often remain dominant but dormant. However, when a stressful
situation comes or any situation which arouses anxiety as was experimental
demonstrated in this study, their dependency pattern is
exhibited. This choice to be with others in first borns in
stressful situations is said to provide the first borns with
security, the development of which has also already been
discussed earlier on. It should also be mentioned that the
greater caution the parents use in handling their first borns
effects the production of fear which when in stress, they need
the company of others either for the reduction of stress or for
re-assurance about the stress from others. The turning toward
contemporary peer models in stressful situations gives the first
borns some re-assurance about either the stress and/or
the imminent threat. Furthermore, and in agreement with
Sheier (1958), it should be added that first borns lack confidence
and self-assurance which give them a tendency to conform. The
development of a lack of confidence in first borns has been
fully explained earlier on.

The findings on the experimental part of this study, which
was an additional aspect of hypothesis 1 in the survey study, have
been interpreted in terms of the earlier discussion on hypothesis 1.
Additionally, it has been mentioned that when faced with anxiety
arousing situations, first borns also become more dependent than
later borns as they lack internalized reference points for their
security which later borns develop early in life and helps them to be inclined toward independent behaviours. This independency in later borns helps them to choose to be alone when faced with stressful and anxiety arousing situations.
Section 3

Summary and Conclusion

This study investigated the effects of birth order on psychological functioning. The specific hypotheses tested are:

(i) First born males are more dependent than later born males.
(ii) First borns perform better in school than later borns.
(iii) First born males perform better on manual skills than later borns. Third borns were picked in order to avoid lumping later borns together against first borns, which has been a common practice in the West on birth order research.

The study was mainly a survey but with one experimental part. In the survey part of the study, the sample was drawn from a rural area in Petauke District of Eastern Province. This included 50 first born and 50 third born male children aged between 12 and 15, in grades 6 and 7 and attending schools in the area where research took place. Additionally, 50 male parents were also given a questionnaire for information about their dependency expectations in first born male children.

The experimental section involved 50 first born males and 50 third born males drawn from two Lusaka Primary Schools in high density areas. The experiment involved measuring levels of anxiety before and after the experiment and also the measurement of dependency with and without anxiety arousing stimulus. In all, this study involved 250 subjects of whom 200 were first and third born male children and 50 were male parents.
The findings of both the survey and experimental studies supported the dependency hypothesis. First born male children were found to be more dependent than third born male children. It was also found that when given an anxiety arousing stimulus, first borns' level of anxiety increased more than that of third borns. The findings, however, did not support the hypothesis that first born children would perform better in academic activities than third born children. The findings supported the manual skill hypothesis that first borns would do better in manual skill performance than third borns.

The findings on dependency were interpreted in terms of differential parental expectations and treatments and parents - children interactions. The ways how first borns undergo the processes of weaning and socialization among the Nsenga were also mentioned as probable causes of the development of dependent behaviour in first born male children.

The lack of differences in academic performance between the first and third borns among the Nsenga was interpreted mainly in terms of a lack of differential verbal facilitation due to language problems when the two categories of children first enter the schools. Low level of parental education, large family size, and some cultural values were also mentioned as factors not favouring the first born male children in doing better academically than the third born children.
The proficiency of first borns in manual skills was interpreted in terms of the first borns' proximity to parents and the adult world and also in terms of the first borns' leadership role among later siblings. Because of his proximity to the adult world, the first born acquires more of the skills that are role specific from the adult world. It has been said that the parents' expectations for the first born to take on responsibilities of leadership in the family encourages the first borns more than later borns to acquire more proficiency in manual skills.

In sum, findings indicate that birth order affects the personality development and psychological functioning of individuals. There is, however, a need for further research on the psychological variables investigated. For example, dependency of first borns who are females or male children who are followed by female children needs to be investigated. Similarly, first borns need to be compared with last borns who are also given maximal interaction by Nsenga parents. Further more, the phenomena may also be investigated longitudinally in order to see the pattern of development of dependent behaviours and skill and academic performances.

While this study has thrown some light on the effects of birth order in a matrilineal society in this country, the results, such as on academic performance should be taken with caution because of methodological problems. It might have been
more objective probably to use test results from standardized tests wherever they are available. A final examination like the one at grade VII or even form III should be used in future research on academic performance. There is also a need for comparisons to be made on a single subject to find out if differential treatment of children facilitates differential performance on certain school subjects.


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# APPENDIX 1

**Showing Child Personality Assessment Questionnaire**

**INSTRUCTIONS**

These statements are about you. Answer them as truthfully as possible. Do not write your name. Only write '1' at the top right corner if you are first born, and '3' if you are third born. Choose only one alternative for each statement and write the number on dotted lines.

<table>
<thead>
<tr>
<th>ALWAYS TRUE OF ME</th>
<th>SOMETIMES TRUE OF ME AND SOMETIMES NOT TRUE OF ME</th>
<th>RARELY TRUE OF ME</th>
<th>NEVER TRUE OF ME</th>
</tr>
</thead>
</table>

1. I like my mother to feel sorry for me when I am sick. (Ndikonda amni kundinvera cifundo pamene ndidwala). ..........  

2. I like my friends to show a lot of affection for me (Ndifuna kuti anzanga adzionetsa cikondi kwambiri kwaine). ..........  

3. My parents should show a lot of love for me. (Makolo anga adzionetsa cikondi cacikulu kwaine). ..........  

4. I prefer to workout difficulties on my own rather than ask for encouragement. (Ndisankha kucita zintu zobvuta ine ndokha m'walo mofuna cilimbikitso). ..........  

5. I don't like people who always want me to do things on my own. (Sindikonda anthu amene athwizone afuna kuti ine ndizicita cinthu pandekha).

6. When I have failed to do something, I like my friends to give me encouragement. (Pamene ndalephera kucita cinthu, ndikonda zunanga ku ndilimbikisa).

7. When I am sick, I want people to feel sorry for me. (Ngati ndadwala, ndifuna anthu kundimvela cifundo).

8. I worry very much if people show that they will not help me when I am in trouble. (Ndlovutika kwambiri ngati anthu nonetsa kuti sadzandithandidza pamene ndili m'zobvuta).

9. People who always want to do things for me could make best friends for me. (Anthu amene nonetsa kundicitira zinthu, angakhale abwenzi ange kwambiri).

10. My mother should give me a lot of attention. (Amai anagadzichenetsa sidwi kwambiri paine).

11. I do not like wasting time solving a problem when other can do it for me. (Sindikonda kutaya nthawi kuganiza m'mene ndingcoicitira cithu cobvuta pamene ona angandinaze mocicitira).

12. I do not prefer classmates who are usually unhelpful. (Sindingasankho anu asakulu anzanga amene sathandiza kawili-kawili).
13. when I have a new problem, I do not like suffering when I know someone knows the answer. (Pamene ndili ndibvuto latocono simikondwa kubvutika pamene ndiziva kuti vino adziva soicitila).

14. Teachers should always show me what to do when I have a problem. (Aphunzitsi ayenera kundionetsa cocita pamene ndili ndibvuto).

15. I feel it could be a good thing in the world if people did most of the things for me. (Ndimvera kuti cikadzakula cinthu cabwino padziko capansi kuti anthu akadzicitira zinthu zambiri).

THANK YOU VERY MUCH FOR YOUR COOPERATION.
**APPENDIX 2 SHOWING**

**PARENTAL DESCRIPTION OF FIRST BORN MALE CHILDREN QUESTIONNAIRE**

NAME OF MALE PARENT ........................................
VILLAGE AND CHIEF ...........................................
LEVEL OF EDUCATION ...........................................
NUMBER OF CHILDREN .........................................
SEX OF FIRST BORN CHILD .................................
STAYED WITH NEPHEW ....................... FOR HOW LONG ....

---

PLEASE SAY WHETHER THESE THINGS HERE ARE WHAT YOU EXPECT OF YOUR FIRST BORN MALE CHILD. DO YOU EXPECT YOUR FIRST BORN MALE CHILD.

- To make decisions by himself Yes. No.
- To earn his own livelihood
- To do well in school on his own
- To be willing to try new things on his own without depending on his mother for help.
- To show pride in his own ability to do things well.
- To try hard things for himself without asking for help.
- To be able to lead other children
- To make his own friends among children his own age.
- To like to be given encouragement when they are having trouble with something?
<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>To like people feeling sorry for them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To keep problems to himself rather than seek comfort.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To like other feeling sorry for him when he is sick.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To like working out problems on his own.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To like people doing things for him.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To like being given attention.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To worry alot if parent showed less love for him.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3

Showing Scoring Sheet for Fathers' Expectations

<table>
<thead>
<tr>
<th>SECTION</th>
<th>DEPENDENCE</th>
<th>INDEPENDENCE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>GRAND TOTAL 800</td>
</tr>
</tbody>
</table>
Appendix 4

Showing Samples of Sisal Strings in Five Categories
Appendix 5

Showing Child Form Manifest Anxiety Scale
(C.F.M.A.S.)

INSTRUCTIONS:

THESE STATEMENTS ARE ABOUT YOU. ANSWER THEM AS TRUTHFULLY AS POSSIBLE. NOMINATIONS WILL BE GIVEN FOR YOUR ANSWERS, SO, A SAY WHAT IS TRUE ABOUT YOU. BE FRANK. DO NOT WRITE YOUR NAMES. ONLY WRITE DOWN YOUR RATING ORDER IN THE TOP RIGHT CORNER OF THIS FORM.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is hard for me to keep my mind on anything</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>2. I get uneasy if someone watches me work</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>3. I feel I have to be best in everything</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>4. I feel ashamed most of the time</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>5. My heart beats very fast sometimes</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>6. At times I feel like shouting</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>7. Others seem to do things easier than I do</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>8. I am secretly afraid of alot of things</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>9. I feel that others do not like the way I do things</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>10. I have trouble making up my mind</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>11. I get very worried when things do not go the right way for me</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>12. I worry most of the time</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>13. I get angry easily</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>14. I sweat on my hands</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>15. I go to the toilet more that most people</td>
<td>......</td>
<td>......</td>
</tr>
<tr>
<td>No.</td>
<td>Statement</td>
<td>Yea</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------------------------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>16.</td>
<td>Other children are happier than I</td>
<td>.....</td>
</tr>
<tr>
<td>17.</td>
<td>I worry about what other people think about me</td>
<td>.....</td>
</tr>
<tr>
<td>18.</td>
<td>My feelings get hurt easily</td>
<td>.....</td>
</tr>
<tr>
<td>19.</td>
<td>I worry about what is going to happen</td>
<td>.....</td>
</tr>
<tr>
<td>20.</td>
<td>It is hard for me to go to sleep at night</td>
<td>.....</td>
</tr>
<tr>
<td>21.</td>
<td>I worry about how well I do in school</td>
<td>.....</td>
</tr>
<tr>
<td>22.</td>
<td>I feel that someone will tell me I do things the wrong way</td>
<td>.....</td>
</tr>
<tr>
<td>23.</td>
<td>I am afraid of the dark</td>
<td>.....</td>
</tr>
<tr>
<td>24.</td>
<td>It is hard for me to keep my mind on my school work</td>
<td>.....</td>
</tr>
<tr>
<td>25.</td>
<td>I often worry about what could happen to my parents</td>
<td>.....</td>
</tr>
</tbody>
</table>

THE END.

THANK YOU VERY MUCH.
Appendix 6

Showing Choice Response Sheet

PLEASE WRITE YOUR NUMBER IN THE FAMILY HERE

TICK (✓) AGAINST YOUR CHOICE.

I WANT TO WAIT IN A ROOM WHERE:

I WILL BE ALONE

I WILL BE TOGETHER WITH OTHERS
Appendix 6

Showing Choice Response Sheet

PLEASE WRITE YOUR NUMBER IN THE FAMILY HERE

TICK (✓) AGAINST YOUR CHOICE.

I WANT TO WAIT IN A ROOM WHERE:

I WILL BE ALONE

I WILL BE TOGETHER WITH OTHERS