A STUDY OF PRIMARY SCHOOL PUPILS' ACADEMIC PERFORMANCE AND SELF - ESTEEM IN RELATION TO THEIR POSITION IN THE FAMILY

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ABSTRACT

A study was undertaken to assess the academic performance and self-esteem of two samples of primary school pupils with regard to several sibling structure variables. The research was conducted in two stages (involving 10/11 year old children), with a view to considering the extent to which performance in relation to position in family could be explained in terms of self-esteem.

Stage One was based upon 182 children, who had wide-ranging home backgrounds. All subjects attended one of five contrasting schools and were tested with regard to self-esteem and spelling which was judged to be a reasonable measure of academic performance.

Stage Two concentrated upon 50 children in attendance at one school situated in an educational priority area. Tests concerning spelling performance, reading performance, mathematical performance and self-esteem were administered to the second sample.

The results appertaining to each respective stage were then analysed in terms of sibling-status, birth-order, family configuration and family size. It was discovered that self-esteem correlated strongly with academic performance, and that high test scores tended to be associated with high sibling status, high ordinal position, advantageous position in family and small family size.

In particular it was noted that a pattern emerged which suggested that eldest siblings performed better than youngest and intermediate siblings and the self-esteem of eldests was also seen to be higher than that of youngests and intermediates. Additionally it seemed that early-born intermediate children were much higher in self-esteem and performed much better academically than late-born intermediates. In respect of family size a trend arose that appeared to suggest that academic performance and self-esteem declined with an increase in the size of family.

It was concluded that the home environment, differential parental treatment, sibling interaction and the influence of significant others, coupled with an individual's position in family accounted for the

differences in self-esteem and academic performance.

Thereafter consideration is given to the implications that this survey has for schools in general.

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I N T R O D U C T I O N

To any practising teacher concerned to develop as much as possible his or her pupils' performance at school, a matter of obvious and crucial importance is that of the factors that would seem to be associated with that performance. One such group of factors arises from the pupil's position in his family. This in its simplest form refers to his position as the eldest, second born, third born or fourth, depending on the size of his family. Much more research in this field has been carried out in the USA than the UK. There is general agreement that many children's performance at school has indeed some relationship to their position in their family. The relationship would sometimes appear to be anything but a simple one; as might be expected, the significance in this context of the child's position in his family might be influenced also by the age gap between siblings and their sex. The size of the family might also be of significance. To the teacher aware of the relevance of such factors over which he has no control, the important question must be why some children's performance is related to their position in the family.

For some years now, children's self-concepts (of which self-esteem is one aspect) in relation to their performance at school has also been the subject of considerable interest and research. There would appear to be substantial agreement that typically there exists a positive relationship between the two.

The purpose of this thesis is to consider the possibility that there exists a causal relationship between the two fields of research in that children's performance at school in relation to their position in their family might be explained in terms of their self-concept and in particular their self-esteem. The writer, a practising teacher, sees the issues involved essentially in their practical context as they affect the work of his own school, a comparatively large primary school serving a socially deprived area in a town in the north of England. Much of the work on which it is based was carried out in this school.

The investigation was carried out in two main stages. Work in one school, while it allows the opportunity for detailed study with factors relating to the school's organisation held constant, involves comparatively small numbers of pupils from a particular catchment area. For this reason the first stage consisted of work on position in family,

self-esteem and a major measure of performance in all the five primary schools in the town. This work is reported in Chapter III. The second, and main, stage of the investigation involved a study in the one school of children's performance, using three measures, in relation to the same factors. This work is reported in Chapters IV, V, VI and VII. This account of the work is preceded by a review of the literature (Chapter I) and discussion of the design of the investigation (Chapter II). It is followed by a discussion of the results (Chapter VIII) and conclusions.

I REVIEW OF LITERATURE

The amount of literature appertaining to sibling structure variables (i.e. number in family, birth order, gender, gender of siblings, age and age-spacing) and children's learning is quite extensive. However as a result of such investigative work, researchers appear to be sub-divided into two schools of thought, namely those who claim that certain aspects of the family constellation have a strong bearing upon a child's learning, and those who deem that familial interaction is the influential factor. These differences in opinion are highlighted by the following authorities:-

> Schooler (1972) "The study of birth necessitates dealing with the complexities such as the sex of siblings and family density ..... a clearer understanding of birth order effects would emerge if such variables as sex and closeness in age of siblings was taken into account."
>
> Dunn (1984) "Recent research strongly suggests that psychologists should 'think again' before assuming that what matters most in a child's relations with his siblings are the old favourites - birth order, age gap and gender."
>
> Mussen, Conger, Kagan and Huston (1984) "The extent to which siblings help shape a child's personality and social development varies with such factors as the child's sex, the sex of the sibling(s), ordinal position (e.g. first, middle, youngest child in the family), spacing (closeness in age to siblings), total number of children in the family and parental treatment."

The assessment procedures that have been adopted to measure and monitor sibling development have varied in format and approach as a consequence of the professional background and occupation of the research workers involved, and with regard to the particular sample of subjects being studied. Much of the work on the educational performance of siblings is based upon the scores obtained from standardised tests on intelligence and achievement. However, a few studies have taken into account the teacher assessment of siblings, whereby pupils are rated on a particular scale in respect of their development, in addition to their level of attainment on standardised tests or examination results. In contrast to this, other studies relating to the ability or the behaviour of subjects have concentrated upon either observational techniques or the recording and analysis of interviews held with the subjects.

Some findings have revealed that there is a close relationship between personal development and family constellation, whilst others have reserved judgement. Where results have proved to be significant, a consensus of opinion is lacking as to a theoretical explanation for this. For example the extent to which heredity, the quality of the environment, integration amongst family members, the status and the role of siblings, parental expectations and teacher expectations have a cumulative effect upon facilitating the development of siblings appears to be unclear. Because of the nature of this particular investigation, a wide range of literature has been selected as having some bearing upon it, including that concerned with the relevant factors affecting children's self-esteem and achievement. Consequently, the review of literature will be considered under these two main headings. Any conclusions that are drawn should not be treated as definitive or regarded as 'generalisations', they should merely be used as a basis from which further investigative work might ensue.

The literature regarding children's learning in terms of ability and achievement will focus upon the following sections :-

a) Gender
b) Age-spacing
c) Birth Order
d) Sibling Status or Sibship Position
e) Family Size
f) Parental Treatment and Sibling Interaction
g) School Influence

As a consequence of dealing with the literature in this manner there is some overlap of the various authors' work portrayed within the different sections. This is due to the fact that they have concentrated upon more than one of the above variables and their findings in respect of these have been extracted and combined to produce a more coherent picture, dating from the past to the present. Following this method of approach, the literature in respect of self esteem and its connection with learning will be examined in a similar fashion, to identify the possible relationship to sibling structure variables.

GENDER

A study by Damrin in 1949, attempted to determine the effects of

family size, family position, sibling sex and sibling age upon intelligence, academic achievement, home, social and emotional adjustment and social acceptability. The findings were indecisive but with regard to gender, and in particular to sibling sex, this was seen to have no effect whatsoever upon the 6 variables. In contrast to this Schoonover (1959) administered 9 tests of intelligence and achievement related to various curricular areas within school, and although her findings were also indecisive in terms of birth order and age gap, she concluded that gender was an important factor :- "Sibs, irrespective of sex, with brothers consistently had higher mental and achievement ages than sibs with sisters." Bayley's comparative study of 1,400 infants' mental and motor ability in 1965 disclosed that, "No differences in scores were found for either scale between boys and girls, first born and later born, education of either father or mother or geographic residence." 'Differences in the Behaviour of Mothers Toward First and Later Born Children,' as reported by Hilton in 1967, showed that in two sib families, where both were of the same gender, first-born boys and girls were more dependent upon their parent than later-borns, however, a sex difference in the behaviour of the two familial groupings was not apparent.

Sutton-Smith and Rosenberg (1970) deem that both the gender of an individual and that of a sibling have a bearing upon a child's development as can be seen from the following extracts :-

> "The sex of a sibling (whether boy or girl) is also of importance ....."
>
> "The sex character of a subject's sibling has effects on the subject's interests, preferences, abilities and behaviour."

Jacobs and Moss (1976), whose work was concerned with birth order and sex of sibling in respect of mother-infant interaction, concluded that of all the 32 first and second born siblings studied at 3 months of age, the later borns received less attention particularly if they were girls with older sisters, and to a lesser degree if they were girls with an older brother. In relation to school grades and sibling structure, Cicirelli (1977) discovered that in a sample of 160 families (with 2 children and of the same

socioeconomic background) girls received higher grades than boys and first born children received higher scores if their sibling was a girl, whilst the attainment of second borns was higher if they had a brother. Lamb's study in 1978 which was entitled 'Interactions Between Eighteen Month Olds And Their Pre-School Aged Siblings,' revealed that a low level of interaction between siblings existed and "At least on the behavioural dimensions recorded there were few sex differences in patterns of sibling interaction."

Bank and Kahn (1982) believe that, "Many other factors can come into play as siblings struggle for superiority in the area of academic attainment and vocational success. Foremost among these is whether they are both males, both females or a male-female pair ..... A younger girl who surpasses her brother in academic achievement and career often must conceal her greater success from her brother who has been overshadowed by someone who is 'supposed' to be inferior." Their views stem from their observations of patients as clinical psychologists in relation to the way in which pairs of siblings attach and create each other's identities and affect the course of each other's lives.

Wilson and Edington (1982) feel that greater interaction takes place between mother and a baby son (a) as a consequence of the latter being more physically active and (b) especially so if a mother's desire for a first born son is met, as this will cause the baby to receive more devoted attention. In the authors' estimation the result is that, "First born males, as a rule, rank higher in verbal skills than children in any other ordinal position - even first born girls." Dunn (1984) has a somewhat contrasting view, which finalises this section related to gender, by commenting upon this with regard to sibling interaction. "It is clearly not the case that sex differences in either younger or older siblings can be linked in a simple or powerfully predictive way to differences in the way in which the children relate to one another."

AGE SPACING

A lack of knowledge appears to prevail in respect of the age spacing between siblings and the impact this has upon their development.

Of the few investigations that have incorporated this sibling structure variable, findings seem to be somewhat diverse. In 1968 Chittenden, Foan, Zweil and Smith compiled data based upon the school achievement of first and second born siblings, obtained from standardised test scores and teacher grades (ranging from a 1 to 12 point scale). Subjects were divided into three groups, namely those whose difference in age was 12 to 23 months, those with an age gap of between 24 to 35 months, and those with a span exceeding 36 months. The study showed that, "First born superiority was most evident in sibling pairs close in age, regardless of sex of sibling," and this is attributed to the fact that, "A second born, arriving when his older sibling is only a year or a year and a half older, may be placed in a more severe competitive position than one who arrives somewhat later."

Zajonc and Markus (1975) also emphasise the importance of age spacing in their study of 400,000 19 year olds. They conclude that a small gap in years between siblings results in forthcoming children entering a severely impoverished intellectual environment, which declines as family size increases and harms youngest children far more so than older ones. In 1979 Abramovitch, Corter and Lando studied the interaction of 34 pairs of siblings of the same sex, whose average proximity in birth was 20 months. The pairs were divided into 2 groups, the age ranges for which were 1 to 2 years and 2.5 to 4 years, and the main conclusion that was drawn was that, "The interval between siblings had little effect on the patterning of interaction." Another viewpoint (which may be likened to that of Chittenden et al and interpreted to highlight the effect of sibling rivalry), is expressed by Bank and Kahn (1982) for they believe that, "The closer children are in age the greater the opportunity for sharing developmental events in similar ways." Lastly Dunn (1984) prefers not to commit herself with regard to the sibling age interval as she states, ".....We clearly should not draw simple conclusions about the significance (or the insignificance) of the age gap between sisters and brothers."

BIRTH ORDER

The majority of work concerned with child development and family

constellation has mainly been with regard to birth order or ordinal position and academic achievement. However the drawback to many of these investigations has been that ordinal position has been concentrated upon regardless of the actual family configuration. For example the child who occupies a specific birth order within one family, may well perform and behave differently to the child of a corresponding ordinal position whose family size is either larger or smaller. Furthermore, rarely has research attempted to include siblings from family sizes greater than 3, thus an incomplete picture has been portrayed.

Koch's work in 1955 involved a study of 2 sib families where the subjects were approximately 6 years old with an age gap extending from 25 to 48 months. She obtained teachers ratings on personality traits of the children and concluded that, "First borns seem to be .....more concerned about status.....second borns tend to be reared more permissively." A study carried out by Chopra in 1966 contained a sample of approximately 1,300 Indian boys aged between 14 and 17 years. Intelligence and academic achievement was measured by test scores and high school examination marks. As family size increased, scores and marks decreased, and no relationship was recorded in respect of the ordinal position of birth and the educational performance of siblings.

Burton (1968) discovered that amongst a sample of 88,000 high school students there was, "A slight superiority in intelligence of first born over last born." Cullen (1969) carried out research upon pupils aged between 11 and 13 years with regard to their class, socioeconomic status and the social factors which might influence educational attainment. Her findings suggested that, "Some relationships between educational attainment and the position of the survey child in his family was indicated since twice as many educationally advanced children as retarded children were first born in their families and only half as many were fourth or later children." Adams and Phillips (1972) also highlighted the superiority of first born children. They compared the educational performance of 370 children who were categorised as either 'first borns' or 'later borns', and found that the eldest children scored significantly higher than the others in terms of verbal scores, non-verbal scores and teachers' academic grades.

This was attributed to first borns having a higher level of school motivation, coupled with a desire to meet their parents expectations, for them in particular, to do well academically.

Glass Neulinger and Brim (1974) studied birth order with regard to verbal intelligence and educational aspiration, and conducted investigative work upon 2,500 children within 1 to 3 child families. The results showed a regression in performance as ordinal position decreased, "Reliable differences in test scores appeared between third born respondents and each of the other birth order categories .....only children 61.9, first born 63.4, second born 61.1, third born 53.4.....there was a similar picture in terms of educational aspiration." Wilson and Edington (1982) believe that a different pattern exists with regard to ones position in family, as they are of the opinion that an intermediate child 'suffers' the most within the family unit, "It is often the fate of your ordinal position to feel.....completely by-passed and upstaged by elder and younger sibs."

Bank and Kahn (1982) conclude this section on birth order with a viewpoint that attempts to outline the reasons for the level of achievement in relation to ordinal position, "It has long been observed that the academic attainments of earlier born children tend to be higher than those of later born ones. Eminence.....appears to be related to ones being the oldest or the only child in a family, presumably because of the greater value and attention given to first born children both economically and psychologically. It thus comes as no surprise that parents tend to expect more of a first born than of second, third or fourth children. First borns are nudged toward independence and self-sufficiency and are disciplined earlier in childhood than are their younger brothers and sisters."

SIBLING STATUS OR SIBSHIP POSITION

The next part of this chapter covers the literature which deals with sibling status or sibship position irrespective of the number of children within the family unit. Lees and Stewart (1957) carried out work of this nature by focusing upon the admittance of 10,000 pupils to either grammar school or secondary modern school. With regard to their sibling status, subjects were classified as either Youngests,

Intermediates or Eldests, and of their performance it was stated, "In general, in the samples examined only and oldest children are scholastically most able and significantly more able than either Youngests or Intermediates. Youngest are next most able and significantly more able than Intermediates." The survey carried out by Douglas in 1964 showed no such findings as supported by the following statement;- "Comparisons between elder and younger children from different families showed no consistent relationship between birth rank and test score in any size of family or in either sex." Sutton, Smith and Rosenberg (1970 in particular highlight the position of intermediate children, "They do not get the exclusive attention of being first born, or the doting attention of being youngest.....They seem to do more poorly in achievement....."

In 1970,also, Peters produced results that confirmed the findings of previous authors. She studied the performance in spelling of over 800 primary school children, and analysed the data in relation to sibship position. The scores were as follows:- Eldests 30.72, Intermediates 27.88, Youngests 30.7, Sample Mean 29.75. Mussen, Conger, Kagan and Huston (1984) believe that, "Since older siblings generally are more competent than younger ones and have more power during childhood, later born are more likely to suffer from feelings of inadequacy and to be realistic in their self evaluation." Contrary to all of these findings Dunn (1984) points out that, "We do not find simple clear connections between a child's position in the family, the sex of his sibling, and the way that children get along or the way in which their personalities develop." However, Peters (1985) reiterates her earlier findings with the following statement:- "In the writer's research, it was interesting to note that of the children who neither catch nor learn spelling very early, are not those who are favourably placed in family order, i.e. the oldest or the youngest do in fact progress well.....than do children in the middle of a family."

FAMILY SIZE

The size of family to which a child belongs is said to be an important factor which partly determines the way in which he or she develops. However, the rank order of birth that a child holds in relation to the numerical size of his or her family may well be of

greater significance than solely family size or solely birth order in respect of the individual. The literature referred to herein tends to concentrate upon either the one or the other factor alone, thus a deficiency may exist which might not be the case if a combined approach to this subject area were adopted. Douglas (1964) comments as follows:- "It seems that the association of family size with the level of measured intelligence is approximately as great today as it was 10 years ago."

A study of approximately 2,800 primary school children completed by Nisbet and Entwistle in 1967 involved the pupils being assessed on tests of intelligence and attainment. The work which spanned over 16 years concluded that, "By analysing the data within social classes, it can be shown that the relation between intelligence test score and family size is not just another aspect of the differences between the social classes.....the results show the familiar relationships between test score and family size in all social classes for both English and non-verbal tests." Burton (1968) is in agreement with Nisbet and Entwistle in that, "A decreasing progression of intelligence with birth order is seen to be the predominant pattern among 3, 4 and 5 child families within each socioeconomic group," and Cullen, (1969) likewise, is of the same opinion, "Families..... tended to be slightly larger in the educationally retarded group..... compared with the educationally advanced group."

Marjoribanks Walberg and Bargen (1975) carried out a study of 185 boys aged 11 years with regard to 'Mental Abilities, Sibling Constellation and Social Class', Their results showed that, "While children with more siblings tend to score lower on verbal and number tests the relation is attenuated and minimal in families in which the father has high occupational status. The probable impairment of the mental abilities is largest in families in which the father belongs to the lowest occupational category." Research concerned with 'Sibling Structure and Intellectual Ability,' involved Cicirelli (1976) testing 600 white, middle class, mixed sex, children aged between 11 and 12 years. He concluded that, "Mean I.Q. declined as family size increased from 2 to 7," and no consistent decline of I.Q. with increasing birth order was evident.

PARENTAL TREATMENT AND SIBLING INTERATICN

The penultimate section of this chapter deals with the effect of parental treatment and sibling interaction upon child development, in terms of achievement, attainment and behaviour. Marjoribanks, Walberg and Bargen (1975) emphasised the effect of parental treatment of siblings by pointing out that, "The amount of parental attention which each child receives, decreases as the number of children increase.....First borns may tend to be brighter because .....they receive 100 per cent of parental stimulation until the second child is born, whereas later born children usually have to share parental attention."

Stacy (1976) stressed the importance of family life upon the individual's development in the following terms, "Parental values, attitudes and behaviour, the organisation of family life and family stability exert a fairly considerable influence on a child's self-evaluation, aspirations and school performance." In respect of observational studies concerned with mother-infant interaction, Jacobs and Moss (1976) found that mothers spent less time in social affectionate and caretaking interaction with second borns compared with first borns, particularly so if the later born child was a female. This behavioural pattern is attributed to the fact that the novelty and excitement of rearing a second child is less attractive, the experience gained already with an earlier child has increased baby management in terms of confidence and reduced anxiety, and finally the competition from an older child now causes the mother to divide her attention between the two of them.

In 1983 Corter, Abramovitch and Pepler studied 'The Role Of The Mother In Sibling Interaction,' and based their work upon 28 pairs of same sex siblings and 28 pairs of mixed six siblings within 2 child middle class families of differing age gaps. Contrary to earlier findings the mothers proved to be consistent in the treatment of younger and older sibs in both same sex and mixed sex pairs. Dunn (1983) takes the view that the degree of interaction between family members and their treatment of each other forms their character and helps to shape their development. She argues that;- "Research into the origins of the marked individual differences between siblings

must take account of the mutual influence of parental and sibling relationships, not solely sibling structure variables."

".....siblings may by their behaviour toward each other, create very different environments for one another within the family."

".....it seems highly likely that the relationship between young siblings will affect and be affected by the child's relationship with their parents."

"Birth order effects could be the result of differential parental treatment or of more direct influences between siblings."

SCHOOL INFLUENCE

The last area to this part of the chapter deals in a limited manner only with the school influence upon siblings owing to the lack of available literature. Musgrove (1970) feels that, "It seems reasonable to suggest that first born boys at any rate may be successful in our school system not because they are individualists, but because they are not, because they need the approval of adults and conform closely to the expectations of teachers." Seaver (1973) is also of the opinion that teacher expectations of siblings can influence performance. He carried out investigative work with 79 siblings who had been preceded in school by bright or dull older siblings. He hypothesised that pupils taught by the same teacher as their older siblings would perform better than those taught by a different teacher, if the older sibling was bright, and worse if the older sibling was dull. The results, based upon the first grade achievement scores, proved conclusive, as the pupils performance was affected by teacher expectations.

This concludes the first part of the review of literature upon family constellation and children's learning. The second part is concerned with the relationship between self-esteem and children's learning and also the association of self-esteem with sibling structure variables.

S E L F - E S T E E M

By way of introducing this section upon children's learning and self-esteem, an explanation of the term is given and a number of definitions are offered for the reader's benefit. Self-esteem, in essence, is the evaluative element of the self-concept, in relation to others or his environment, whereby an individual appraises himself favourably or unfavourably. The self-image, which is the second element of self-concept is a belief held about oneself which in fact may or may not be valid. For example a person may make a value judgement of his appearance with regard to his baldness, which causes him to have positive or negative feelings about this (self-esteem), whereas his self-image would be based upon his assessment of how bald he actually is in relation to others, void of any personal emotions. The resultant self-concept of the individual in relation to baldness would be dependent upon the evaluation of his appearance combined with an unmeasured view of his baldness which may or may not be appropriate in comparison to others. The authors listed below define 'self-esteem' in the following terms:-

> Coopersmith (1967) "By self-esteem we refer to the evaluation which the individual makes and customarily maintains with regard to himself; it expresses an attitude of approval or disapproval and indicates the extent to which the individual believes himself capable, significant, successful and worthy. In short self-esteem is a personal judgement of worthiness that is expressed in the attitudes the individual holds towards himself."
>
> Lawrence (1973) "Self-esteem or self-respect can be thought of as a person's evaluation of his self-image in relation to his ideal self."
>
> Samuels (1977) "Self-esteem is the evaluative sector of the self-concept. An individual who has high self-esteem respects herself and considers herself worthy, feels competent, and has a sense of belonging. If her self-esteem is low, she lacks respect for the self and believes she is incapable, insignificant, unsuccessful and unworthy."
>
> Burns (1979) "Self-esteem or self-evaluation is the process in which the individual examines his performance, capabilities and attributes according to his personal standards and values, which have been internalised from society and significant others."

As both 'self-esteem' and 'self-concept' are derivatives of the process of self evaluation, each of these two terms are used synonimously in this study. Indeed many eminent researchers fail to point out this fine distinction between the two, and treat the scores obtained from both tests of self-esteem and self-concept as equivalent measures, and indicative of an individual's level of self evaluation.

In order to establish whether a relationship between self-esteem and ability or achievement exists, it is proposed that a general survey of such literature is undertaken, followed by a review of the few studies that show a link between self-esteem and family constellation. A study by Brookover and Thomas in 1964 tested the self-concept of ability and school achievement of over 1,000 American students in relation to the following subjects:- Arithmetic, Social Studies, Science and English. They concluded that, "There is a significant positive correlation between self-concept and performance in the academic; this relationship is substantial even when measured I.Q. is controlled." In the same year Wattenberg and Clifford's work upon the relationship of self-concept to the beginning of achievement in reading (which involved 128 kindergarten pupils), showed that, "The measures of self-concept taken in kindergarten proved significantly predictive of progress in reading but not significantly related to mental test scores."

A report by Coopersmith (which in 1967 was published as a book entitled "The Antecedents of Self-Esteem"), concentrated upon 80 subjects aged between 10 and 11 years. Coopersmith (1967) states as follows:- "It should be said that the correlation between subjective self-esteem and intelligence is 0.28 and that between self-esteem and academic achievement is 0.30.....We can say that ability and academic performance are associated with feelings of personal worth....." In contrast to this, the 1973 study by Williams upon the relationships of self-concept and reading achievement, found that there was no significant correlation, and with regard to the 133 first grade pupils tested it was stated that, "At this age reading achievement and possibly school in general, may not greatly influence self-concept." Work by Lewis and Adank (1975) entitled 'Intercorrelations Among

Measures of Intelligence, Achievement, Self-Esteem and Anxiety in Two Groups of Elementary School Pupils Exposed to Two Different Models of Instruction,' recorded correlation coefficients of 0.42 and 0.30 for achievement and esteem, and 0.34 and 0.24 for I.Q. and esteem.

In 1979 Battle tested 187 children (who ranged from first to seventh grade), on 7 areas of academic work plus scholastic attitude. A comparison was made of those subjects in regular classes with those in special classes and results showed that, "The correlation of 0.70 between self-esteem and perception of ability for all students was significant." Burns (1982) supports the findings of most of these American studies as within his book 'Self Concept Development and Education,' he points out that a coefficient greater than + 0.2 between achievement tests and self-esteem repeatedly occurs. Similarly the importance of self-esteem to the learning process, and in particular the acquisition of language skills, is highlighted in Peters (1985) research, ".....For later spelling success it is vital for a child to have a positive self-image....."

Lawrence (1985) also discovered a link between self-esteem and language, namely reading ability. He used a sample of over 300 retarded readers aged 8 years old, whom he divided into 2 groups. One group continued to receive the customary remedial reading provision, whilst the other group experienced a 'therapeutic approach' which incorporated curricular activities such as drama to enhance their self-esteem. Lawrence concluded that, "Significant gains in reading and self-esteem were obtained, giving further support to the notion that self-esteem is an important variable in reading retardation." Cant and Spackman's investigation, which was also reported in 1985, involved 2 groups of children whose reading scores and English Quotients (as measured by the L.E.A.) were recorded. Prior to the testing, one group received 'counselling' on a regular basis by the class teacher, whilst the other group received no special treatment. It was hypothesised that the 'counselling' in reading would raise self-esteem, which in turn would result in higher reading attainment. This proved to be the case as not only did reading scores increase, but also the English Quotients rose, which the investigators commented

upon as follows:- "Reading ability and English Quotient scores are related to their enhanced self-esteem....."

In accordance with the literature reviewed in this particular section it would seem that there is a positive relationship between self-esteem and achievement. The latter part of this chapter gives some indication of the work that has partially been concerned with self-esteem and family constellation. Thereafter the concluding remarks attempt to direct the reader's attention to the possibility that the level of an individual's self-esteem in relation to his or her position in family to some extent influences learning.

GENDER

Research by Sears (1970) into the relationship of early socialization experiences to self-concept and gender centred upon 84 girls and 75 boys aged 12 years. No sex difference was evident with regard to the 5 aggregated self-concept test scores, and the correlation coefficients that were obtained are tablulated below:-

SELF CONCEPT

	BOYS	GIRLS
Reading	0.28	0.28
I.Q.	0.13	0.10
Arithmetic	0.26	0.21

With reference to these results Sears stated that, "A child's self-concept at age 12 is significantly related not only to his own academic competence but to several aspects of the family constellation." Likewise, Sutton - Smith and Rosenberg's (1970) portrayal of siblings within 2 child families in their book concluded that, "High grades and self-esteem are associated." Burns (1982) is of the opinion that a difference in self-esteem between male and female pupils is apparent and is supported by the findings of researchers, "The analysis of the data also demonstrates that boys have a significantly greater self-esteem than girls.....Girls generally show lower self-esteem than boys by adolescence....Boys establish their self-esteem through achievement in many areas; girls

derive their self-esteem through social competence." Of the slight evidence presented herein, there appears to be no definitive findings other than to state that boys are possibly seen to have a higher level of self-esteem than girls.

BIRTH ORDER

A study carried out by Crandall, Katkovsky and Crandall (1965) with 900 children of mixed ages, used a devised scale for assessing children's beliefs that they are, rather than other people, responsible for their intellectual/academic success. They concluded that girls gave more self -responsible answers than boys, and additionally first born children accepted more self-responsibility, attributed to the fact that, "The eldest child must often use school success as his pathway to parental approval."

SIBLING STATUS OR SIBSHIP POSITION

Extensive research conducted by Coopersmith (1967) which dealt with sibling status and self-esteem, disclosed that of the youngest, middle and oldest children whose level of self-esteem was assessed as being low, medium or high, over 70% of those contained within the low or medium groups were youngest or middle children, whilst the high self-esteem group had only 42% of children from the same sib positions. These findings caused Coopersmith to remark as follows:- "Individuals with high self-esteem tend to be either first born or only children.....The ordinal position of the individual among his siblings would appear to be an important influence in his early social experiences." Sears (1970) who grouped together and compared only and oldest children with middle and youngest children, found that the former group had a higher self-esteem than the latter. Thus the trend here, highlighted in these studies, shows that oldest children are higher than their brothers and sisters in terms of self-esteem.

FAMILY SIZE

Very little investigative work has been undertaken in relating self-esteem to family size, however part of Coopersmith's (1967) research encompassed this aspect (though in no great detail), the results of which indicated that, "Children in smaller families are no higher in

self-esteem than are those in larger families." Obviously this is an area worthy of further investigation due to the lack of research that has been initiated.

PARENTAL TREATMENT AND SIBLING INTERACTION

A greater response from authorities is evident with regard to a child's self-esteem and familial interaction. Coopersmith (1967) believes that parents can influence the self-esteem of their offspring by stating that, "Children with high self-esteem are more likely to have parents who provide indirect impressions and direct experiences of success." In other words a father or mother who displays an air of self-respect, be it intentionally or unintentionally, possibly engenders this characteristic in son or daughter. Cullen (1969) interprets the value of the relationship between siblings and parents in a different manner, "The larger the family the less contact and individual attention each child can expect to have from his parents. This would explain why the eldest children are less affected by family size than are others." Thus, the implication here is that the first born child may well be reared initially in a richer environment to that experienced by future siblings. Other writers reaffirm the importance of parental treatment in raising a child's self-esteem, as can be seen from the following comments:-

> Sears (1970) "Parental warmth and affection and love oriented discipline should be associated with high self-esteem."
>
> Lawrence (1973) "There is evidence that children who have a warm affectionate relationship with their parents have a higher self-esteem than those who do not, even if relatively inadequate in specific skills."
>
> Burns (1982) "The family unit provides all the initial indications to the child as to whether he is loved or not, accepted or not, a success or failure, because until school days the family is virtually his only place of learning."

Bank and Kahn (1982) are a little more cynical with regard to the treatment of siblings by parents, as in simplistic terms, they suggest that parents pre-determine the strengths and weaknesses of their children following their conception:- "Even before a baby's birth each parent has begun to anticipate what the child's

identity will be and what role the child will play in the evolving family dynamics.....If one child becomes the 'brain' the other child will have to become something else." Dunn and Kendrick (1982) comment upon familial interaction in respect of sibling upon sibling, which finalises the second part of this chapter. They embarked upon a behavioural study of 40 first born, pre-school infants whose mothers were expecting the arrival of a second child between which an age gap of 18 to 43 months existed. Shortly after the arrival of a sibling it was noted that the elder child's independence increased suddenly and they concluded that, "The birth of a brother or sister must in itself involve a major shift of a symbolic kind - a change in the child's conception of himself as a person." It must, however, be borne in mind that the above effect was upon the self-concept of the oldest child of a two-sib family. The oldest child may or may not be influenced by the arrival of a third brother or sister, or indeed a second born child may or may not be influenced by the addition of a younger sibling.

In summary of this review of literature the following points are noted:-

GENDER - With regard to the gender of siblings in terms of academic performance it appears that there is no difference between boys and girls. However, in relation to the primary school population within this country it is generally recognised that girls are superior to boys especially so in verbal ability. With regard to the level of self-esteem, boys possibly surpass girls.

AGE SPACING - A small age gap in terms of years probably handicaps future siblings as parental attention is reduced, sibling rivalry is probably greater and the quality of the home environment may decrease.

BIRTH ORDER - First born children score higher on tests of achievement than their siblings. Later born siblings tend to be categorised as one group ignoring their actual position within the size of the family. Eldest children are thought to have a higher self-esteem in comparison to their brothers and sisters due to the greater responsibility that is bestowed upon them by parents.

SIBLING STATUS OR SIBSHIP POSITION - Siblings who do best academically listed in descending order are eldests, youngests and lastly intermediates. The eldest child is higher in self-esteem than the rest of his or her siblings, though no distinction is made between intermediates and youngests.

FAMILY SIZE - It is suggested that the level of intelligence decreases with birth order as the family size increases. A child's ability in numeracy and literacy also declines as the number of siblings rises. Limited research suggests that the level of an individual's self-esteem is unaffected by the number of siblings within the family.

PARENTAL TREATMENT AND SIBLING INTERACTION - Although evidence exists which outlines the important role played by parents and children in the development of siblings, the extent to which siblings are treated differently or not, appears to be unresolved and conflicting views are expressed by researchers. Most authorities recognize the fact that children's self-esteem and achievements are associated with parental support and interest.

SCHOOL INFLUENCE - A self-fulfilling prophecy in terms of teacher expectations of pupils may well operate to some degree within schools. Siblings who possess a high level of self-esteem and ability tend to be those children who occupy a favourable position within the family configuration. The attention that they receive from teachers could well raise their self-esteems and improve their academic performance accordingly.

The final comments upon the literature reviewed within this chapter are made with regard to the formulation of a hypothesis for this particular study. It is deemed necessary to firstly make the assertion that a child's learning is enhanced by his or her level of self-esteem. Secondly, the assumption is taken that the level of a child's self-esteem is to some extent determined by the structure of the family. Thus the hypothesis is that the family constellation initially affects self-esteem which in turn regulates the achievement and academic attainment of siblings.

II RESEARCH PROCEDURES

It was decided that the research would be conducted in two stages, namely a broad survey followed by a more detailed one. Stage One initially attempted to verify the theory that self-esteem and academic performance are related, using spelling attainment as an important measure of performance. Additionally, each child's self-esteem and academic performance was examined in relation to their position in family, to identify the possible existence of a definite pattern. This broad survey was based upon a random sample of 182 fourth year junior pupils. They stemmed from a wide ranging socio-economic background and were in attendance at 5 different schools.

The more detailed survey, which was also related to position in family, included three measures of performance i.e. spelling, reading and mathematics, plus a test of self-esteem. In this stage, which was carried out in one school situated in an educational priority area, 50 children were assessed. All subjects were 10/11 year olds and were of the same age group as those tested in Stage One.

In respect of both stages of the investigation, it was decided that from the outset the main objective would be one of attempting to identify the existence of various patterns and trends relating to academic performance, self-esteem, and position in family. Although this was to rely upon the comparison of many mean scores, to which little statistical significance could be attached, it was felt that any consistent trends and patterns emerging in Stage One (using 5 schools) and repeated in Stage Two (using 1 school) could be noted as being of importance. Any such tendencies should then be regarded with a view to affecting future teaching practices, school organisation and/or the undertaking of further research which would possibly incorporate wider sampling, different test instruments, other measures of performance and greater statistical analysis

STAGE ONE

Permission was sought by the writer from 5 different schools to administer personally two tests to all fourth year junior pupils. No candidate had previous experience of the tests administered and no preparatory work was undertaken within the normal class lessons prior to each test. Upon the writer's arrival at every school, he was

formally introduced to the group of testees by the class teacher who then departed. The writer then explained to the class of children that the tests were being administered to assist him in his research and he informed them that the scores of all individuals would be used anonymously. The writer then concluded his preamble by asking each child to exert himself in terms of effort, accuracy and honesty when answering the test questions. The spelling test was administered first of all, and after its completion and an interval of approximately 5 minutes, it was followed by the self-esteem questionnaire. Thus all school visits and tests were completed during a six week period within the Summer term of 1985, the procedures for which are described more fully hereafter.

The Schonell Spelling Test 'A' was administered to all subjects, in which they were asked to write a dictated word. The word was stated in isolation, then repeated within the context of a short sentence and finally stated for a third time. After this a short period was allowed for each child to write down the correct spelling. The test contained ten groups of ten words and each group was of increased difficulty. Upon completion of the test, each individual's paper was collected for marking in accordance with the appropriate system. Each testee's raw score was calculated by the number of words spelt correctly prior to ten consecutive mistakes, at which point the test was deemed to have terminated. Any words spelt correctly thereafter were discounted. From the obtained raw score a spelling age was derived by dividing the number of words spelt correctly by 10 then adding to this 5 years. Thus for example a raw score of 47 would be divided by 10 to leave 4.7, to which 5 would be added, producing a spelling age of 9.7 years.

A further calculation was made from the subject's spelling age, namely the spelling quotient. Reference was made to a conversion table to substitute years and tenths of a year for years and months - for instance 9.7 years became 9 years 8 months. Following this the subject's converted spelling age was divided by his or her chronological age, then multiplied by 100 to produce the spelling quotient. For example a child aged 9 years 2 months who spelt 47 words correctly would have a spelling age of 9.7 or 9 years 8 months, resulting in a spelling quotient of 105, as expressed by the following

formula:-

$$\text{Spelling Quotient} \quad \frac{\text{Spelling Age}}{\text{Chronological Age}} \times 100 = \frac{9\frac{8}{12}}{9\frac{2}{12}} \times 100 = 105$$

A second test was administered to ascertain each child's level of self-esteem. The Lawseq test, which is comprised of 16 items (4 of which were distractors and had no bearing upon the total number of points gained), was answered by all subjects. Initially the children were told that their responses should indicate their personal opinions and that these would not be marked in terms of being 'right' or 'wrong'. A questionnaire was distributed to each child, and he or she was asked to tick the appropriate box labelled 'Yes', 'No' or 'Don't Know' in relation to every question. To avoid any subject encountering difficulty with the reading content of each item, it was decided to pose each question twice orally before he or she was required to select one of the three answers.

The scoring key to the Lawseq Pupil Questionnaire* was based upon a rating scale ranging from 0 to 2 points per item. Questions 4, 7, 9 and 12 were distractors and were discounted. Question One earned the subject 2 points if answered 'Yes'. All remaining questions scored 2 points if answered 'No' and all scored questions answered 'Dont Know' carried one point. Thus 16 items (12 of which were scored) answered in accordance with the scoring key would accumulate a possible maximum points total of 24.

For convenience and in order to determine quickly the relationship between spelling and self-esteem, the Rank Difference Correlation was calculated (using the formula $R=1 - \frac{6\Sigma d^2}{n(n^2-1)}$). Prior to obtaining the coefficient of correlation, a number of steps were taken. Firstly all the data was collated and the 182 subjects were placed in descending rank order with regard to their spelling quotient. Secondly, the rank that each subject occupied in respect of his self-esteem was recorded adjacent to his rank noted on the spelling list. Then the difference in the two ranks achieved by each subject was obtained and then squared. Finally the sum of all the 182 squared

* See Appendix G

differences was computed for insertion in the appropriate formula.

The statistical analysis for this part of the investigation is depicted below:-

$$R = 1 - \frac{6\Sigma d^2}{n(n^2-1)}$$

$$R = 1 - \frac{6 \times 785006.65}{182\ (182^2-1)}$$

$$R = 1 - \frac{4710039.9}{182\ (33124-1)}$$

$$R = 1 - \frac{4710039.9}{(602856-182)}$$

$$R = 1 - \frac{4710039.9}{6028386.0}$$

$$R = 1 - 0.7813102$$

$$R = 0.2186898$$

$$R = + 0.22$$

From this it can be seen as confirmation that self-esteem and academic performance are strongly related as the coefficient of correlations is + 0.22 which is highly significant at the 5% and 1% levels for a sample size of 182.

To examine each subject's level of self-esteem and academic performance in relation to the sibling structure variables and the family constellation, each individual was asked to state the number, gender and ages of respective sibs. This meant that his or her place in the family structure could be recognised. On inspection of this personal information, the complexity of studying a child's performance in relation to his or her specific position in family was apparent. The necessity obviously arose to devise a specific familial grouping system of like data, as distinct from the more general ones adopted by other researchers, which would make it possible to examine performance in relation to a child's precise position in family. Thus a system evolved which considered an individual's performance in terms of 'sibling-status', 'birth-order', 'family configuration' and

'size of family'.

The term 'sibling-status' was applied to the brothers and sisters within a family whose rank was specified as either 'eldests', 'intermediates' or 'youngests'. Eldests (which did not include 'singletons') were classified as first-born children within a family. Youngests were regarded as last-born children, and intermediates (who were further sub-divided), were labelled as those children of middle birth order. Unlike other studies, which have been content to group intermediate siblings together irrespective of family size, this particular investigation sought to adopt an alternative approach. Thus intermediates were identified as being either 'early-born' or 'late-born'. Early-born intermediates were defined as those children who occupied an ordinal position equivalent to the middle rank or higher. This would include the second born child from a family of 3 sibs or more; the third born child from a family of 6 sibs or more; the fourth born child from a family of 8 sibs or more; the fifth born child from a family of 10 sibs or more etc. Late-born intermediates were categorised as those children whose ordinal position was lower than the middle rank. That is the third born child from a 4 to 5 sib family; the fourth born child from a 5 to 7 sib family; the fifth born child from a 6 to 9 sib family; the sixth born child from a 7 to 11 sib family and so on.

The birth order or ordinal position related purely and simply to a sibling's sequential place in respect of brothers and sisters, discounting the family size. Thus a second-born child would be so described irrespective of the size of his family. The family configuration referred to a child's birth order in relation to the number of children within the family - for example the symbol 1/3 would represent a first-born child from a family comprising of 3 children. The fourth grouping of siblings for the purposes of this research was based upon the size of family to which they belonged. Thus all children who were members of a specific numerical size of family were studied irrespective of ordinal position.

With regard to the gender of subjects within the sample size of 182 100 were boys and 82 were girls. The sibling-status category comprised of 71 eldests (31 girls and 40 boys), 69 youngests (30 girls

and 39 boys) and 42 intermediates (equal in number with regard to gender). The group classification of intermediates as early-born contained 25 in number (12 girls and 13 boys) whilst late-born intermediates totalled 17 (9 girls and 8 boys).

In relation to the siblings' birth-order, these were:-

71	first-born	(31 girls	and 40 boys)
68	second-born	(32 girls	and 36 boys)
21	third-born	(8 girls	and 13 boys)
11	fourth-born	(5 girls	and 6 boys)
4	fifth-born	(3 girls	and 1 boy)
1	sixth-born	(1 girl	and 0 boys)
1	seventh-born	(1 girl	and 0 boys)
1	eighth-born	(0 girls	and 1 boy)
3	ninth-born	(1 girl	and 2 boys)
1	tenth-born	(0 girls	and 1 boy)

A child's family configuration appears in the form of a matrix in Table 1, thus providing the reader with a clearer picture.

T A B L E 1

FAMILY CONFIGURATION - STAGE 1

FAMILY SIZE	ORDINAL POSITION										TOTAL
	1	2	3	4	5	6	7	8	9	10	
2	26G 30B	20G 24B									46G 54B
3	5G 10B	8G 8B	6G 9B								19G 27B
4		3G 3B	2G 0B	0G 4B							5G 7B
5		1G 1B	0G 3B	3G 2B	3G 1B						7G 7B
6			0G 1B	2G 0B							2G 1B

FAMILY SIZE	ORDINAL POSITION										TOTAL
	1	2	3	4	5	6	7	8	9	10	
7						1G 0B	1G 0B				2G 0B
9								0G 1B	0G 1B		0G 2B
10									0G 1B		0G 1B
13										0G 1B	0G 1B
14									1G 0B		1G 0B
TOTAL	31G 40B	32G 36B	8G 13B	5G 6B	3G 1B	1G 0B	1G 0B	0G 1B	1G 2B	0G 1B	82G 100B

K E Y

G Denotes Number of Girls

B Denotes Number of Boys

The size of family to which a subject belonged (sample mean 2.9 children per family) is presented as follows:-

Family size of 2 sibs - 100 (46 girls and 54 boys)
Family size of 3 sibs - 46 (19 girls and 27 boys)
Family size of 4 sibs - 12 (5 girls and 7 boys)
Family size of 5 sibs - 14 (7 girls and 7 boys)
Family size of 6 sibs - 3 (2 girls and 1 boy)
Family size of 7 sibs - 2 (2 girls and 0 boys)
Family size of 9 sibs - 2 (0 girls and 2 boys)
Family size of 10 sibs - 1 (0 girls and 1 boy)
Family size of 13 sibs - 1 (0 girls and 1 boy)
Family size of 14 sibs - 1 (1 girl and 0 boys)

In order to analyse the results, each individual's test scores were firstly grouped together according to sibling status, birth order,

family configuration and size of family, then all group scores were aggregated and averaged to obtain an arithmetical mean score in respect of self-esteem and spelling quotient. This drew to a close the proceedings carried out in stage one of the investigation and lay the foundations for the second part which is now described in detail.

STAGE TWO

Stage two was undertaken to gain further insight into self-esteem and academic performance with regard to family constellation. It was also carried out for comparative purposes to ascertain whether earlier findings were repeated within a specific school population and whether they applied also to two other curricular areas. For stage two a sample of 50 fourth year junior pupils (attending a school situated in an educational priority area) was used. The Richmond Tests of Basic Skills, (Levels 3 in Spelling, Reading - Comprehension, Mathematical Concepts and Mathematical Problem Solving), were made available to the writer by the school concerned so that the results could be recorded as part of its assessment system.

Also an opportunity was taken to use a different measure of self-esteem, namely the Davidson and Greenberg Self-Appraisal Scale.* This was developed by the authors for their study of "School Achievers From A Deprived Background", and consequently it was chosen as possibly being a more suitable test instrument to administer to the sample of children described in stage two. All test procedures were completed over a fortnightly period in the Spring term of 1986 on a class basis.

In all the Richmond Tests, each subject was supplied with a test booklet containing multiple choice questions and an answer sheet which required the appropriate answer box to be marked in pencil. All candidates were accustomed to the test procedure, as for many it had been encountered in previous years as part of the school's internal assessment programme. In relation to the spelling test, subjects were presented with 5 options and had to specify whether one of the 4 words was spelt incorrectly or whether no errors existed at all. The test comprised of 33 questions and a duration of 12 minutes was allowed for its completion, after which the marking procedure began.

* See Appendix G

Each child's answer sheet was marked to obtain a basic score, and reference was made to a conversion table to produce a standard age score for each individual. The standard age score was calculated by firstly finding the sum of correct answers, resulting in a raw score. To this was added 23 points to derive a basic score. Account was then taken of each child's chronological age which was expressed in terms of a six-monthly age group. For example 10 years old covered the age range 9.9 to 10.2; 10.6 years covered the age range 10.3 to 10.8; 11.0 years covered the age range 10.9 to 11.2 and 11.6 years covered the age range 11.3 to 11.8. The basic score that corresponded to the subject's chronological age, as depicted within the test's conversion table, determined the standard age score. This spanned from - 70 to +130 with a mean of 100, and the test itself had a reliability coefficient of 0.91.

The administration procedure for the test of reading comprehension was identical to that of spelling with the exception of the time allocation which was 55 minutes. Candidates were presented with 10 different passages and were asked to select one of the 4 answers in relation to each of the 74 questions. The number of items answered correctly produced a raw score, to which 24 points were added to derive a basic score. This accumulation of points was converted to a standard age score by referring to the appropriate table, thus providing a test quotient, the reliability of the test being 0.98.

Two tests of mathematical skills were administered; one to examine mathematical concepts and one to assess performance in mathematical problem solving. The administration procedure and the system for converting marks was similar to that carried out in the previous tests. However, slight differences did exist. Candidates were required to respond accurately to various questions offering 4 multiple choices, within a time limit of 30 minutes. The test of mathematical concepts contained 42 items. A weighting of 30 points was added to the raw score prior to obtaining the basic score. The test related to problem solving (the duration of which was also half an hour) included 29 questions with 4 possible answers contained therein. Each candidate's test paper was marked and standardised in accordance with the directives that accompanied the test of mathematical concepts. The only difference was that the basic score was calculated by the

addition of 25 points to the raw score.

In order to determine an individual's overall mathematical ability, the standard age scores attained on both tests* were aggregated and then averaged and the arithmetical mean was used to indicate the level of performance. In the case of both tests a high coefficient of reliability was apparent; namely 0.87 for the test of mathematical concepts and 0.81 for the test of mathematical problem solving.

In relation to assessing each subject's level of self-esteem, the Davidson and Greenberg's Self-Appraisal Scale was administered. Prior to undertaking the test, all children were given the same preamble concerning anonymity as those in stage one. Then the children were presented with the questionnaire which comprised of 24 items. Each item was written in the form of a statement which could be answered unknowingly on a 3 point scale. One by one, each statement was read aloud by the writer whilst the children read silently. Then they rated themselves (by marking the appropriate box) during the short time allowed between each item.

At the end of the test all papers were collected and marked in accordance with the specified system of scoring. Positive words and phrases (numbers 1, 2, 3,6,8,9,10,11,12,14,15,17,19,21,23 and 24) were given a score of 3 points if the cross appeared in the column headed 'Most Of The Time', 2 points in the column headed 'About Half Of The Time' and one point in the column headed 'Hardly Ever'. The reverse scoring was used for negative items (numbers 4,5,7,13,16,18,20 and 22), giving a points range of 24 to 72 on the entire test, the split-half reliability of which was 0.77.

Each individual's score was recorded and the results and data were grouped according to the various sibling structure variables and categories of family constellation (based upon information provided by the subjects), the composition of which is described in greater detail in the next paragraph.

As previously mentioned, the sample population used in stage two of the investigation comprised of 50 fourth year junior pupils. They were of poor socio-economic background and were in attendance at one

* Candidates were of virtual equal ranking on both tests.

school situated in an educational priority area. With regard to the gender of subjects tested, 30 were girls and 20 were boys. The sibling-status category contained 14 eldests (12 girls and 2 boys), 18 youngests (9 girls and 9 boys) and 18 intermediates (equal in number with regard to gender). The group classification of intermediates as early-born comprised of 8 children (3 girls and 5 boys), whilst late-born intermediates totalled 10 (6 girls and 4 boys).

Additional information relating to intermediate children was also recorded with regard to the age-spacing of siblings. It was noted that the interval between a subject and his or her older adjacent sib ranged from 1 to 5 years (group mean 2.6 years), and the span in years from a subject's birth to that of a younger brother or sister was between 1 and 8 (group mean 3.9 years). Thus on average 3 children were born within each family during the space of 6.5 years or one child was born every 2.2 years.

In relation to the siblings' birth order, there were:-

14	first-born	(12 girls and 2 boys)
11	second-born	(6 girls and 5 boys)
12	third-born	(6 girls and 6 boys)
9	fourth-born	(3 girls and 6 boys)
1	fifth-born	(1 girl and 0 boys)
1	sixth-born	(1 girl and 0 boys)
1	seventh-born	(1 girl and 0 boys)
1	eighth-born	(0 girls and 1 boy)

The sibling structure variable in terms of a child's family configuration is illustrated in Table 2.

TABLE 2

FAMILY CONFIGURATION - STAGE 2

FAMILY SIZE	ORDINAL POSITION								TOTAL
	1	2	3	4	5	6	7	8	
2	2G 1B	3G 1B							5G 2B
3	4G 0B	1G 3B	3G 4B						8G 7B

FAMILY SIZE	ORDINAL POSITION								TOTAL
	1	2	3	4	5	6	7	8	
4	4G 1B	1G 1B	2G 0B	1G 3B					8G 5B
5	2G 0B	1G 0B	1G 1B	1G 2B	1G 0B				6G 3B
6				1G 1B		1G 0B			2G 1B
7			0G 1B						0G 1B
8								0G 1B	0G 1B
9							1G 0B		1G 0B
TOTAL	12G 2B	6G 5B	6G 6B	3G 6B	1G 0B	1G 0B	1G 0B	0G 1B	30G 20B

K E Y

G Denotes Number of Girls

B Denotes Number of Boys

The partition of subjects, with regard to their membership and size of respective family (sample mean 4.4 children per family) is presented as follows:-

Family size of 2 sibs - 7 (5 girls and 2 boys)
Family size of 3 sibs - 15 (8 girls and 7 boys)
Family size of 4 sibs - 13 (8 girls and 5 boys)
Family size of 5 sibs - 9 (6 girls and 3 boys)
Family size of 6 sibs - 3 (2 girls and 1 boy)
Family size of 7 sibs - 1 (0 girls and 1 boy)
Family size of 8 sibs - 1 (0 girls and 1 boy)
Family size of 9 sibs - 1 (1 girl and 0 boys)

As in Stage One, each individual's results were amalgamated in

relation to the various sibling structure variables, and from the grouped data, the arithmetical mean was computed for purposes of analysis and comparison with earlier findings.

Unlike Stage One some of the results in Stage Two were statistically analysed in an attempt to discover the importance thereof. Although this treatment was limited to some of those findings which were tentative, it nevertheless made it possible for some statistical significance to be attached to them. It is, therefore, argued that where more wide ranging, untreated mean scores appear, they can be compared with those scores treated statistically to give an approximation of the statistical significance.

In relation to this it was decided to concentrate upon girls' scores in comparison to boys' scores with regard to each measure of performance. Additionally it was resolved to compare the scores of small families (consisting of 2 or 3 children) to those of large families (4 children or more) in respect of all tests. In order to perform this analysis the standard deviation was calculated and 't'-Test' values were derived, which appear in the Appendices.

In summary of the research analysis it should be noted that most of the data incorporates the scores obtained by pupils on several tests of performance and of self-esteem. This analysis then consists essentially of a relating of these measures of performance with that of self-esteem for individual children and groups of children according to their position in their families. The outcome is a large number of comparisons of mean scores. Some of these relate only to very small numbers of children. This is inevitable when, for example, a distinction is being made between the performance of boys and girls in the low positions that occur only in the very large families. It would have been possible to have combined figures to provide larger totals. The advantages to be derived from this in statistical terms would have been gained at the expense of precision in respect of position in family, which is the main concern of the research. In some cases, particularly where larger numbers are involved in important comparisons, tests of significance have been used. More commonly, however, a simple comparison of mean scores is used. It is accepted that, because of the small numbers involved, little

significance can be attached to any one such comparison and the greater concern is any pattern or tendency that might be apparent across a number of comparisons. In re-emphasis of the research procedures adopted, it should be noted that whilst the sample size (50) used in Stage Two is inferior to that used in Stage One (182), the factors operating within just one school (Stage Two), in terms of organisation and home-background of pupils, remain constant. Additionally, where data is replicated in Stage Two and where collaborative trends can be oerceived, this should be regarded as being of importance.

III ACADEMIC PERFORMANCE

(SPELLING)

SELF-ESTEEM AND POSITION IN FAMILY IN FIVE SCHOOLS

ACADEMIC PERFORMANCE (SPELLING)

Sibling Status

At first all 182 spelling quotients were averaged to obtain an overall mean score, which was 94.3 for the sample. In respect of gender the mean score was 96.1 for girls and 93.0 for boys, thus highlighting slight superiority of the former group over their male counterparts. With regard to sibling-status, eldests had a mean score of 96.8, youngests had a mean score of 92.4 and intermediates had a mean score of 92.8. Further investigative work revealed that eldest girls (100.9) scored higher than eldest boys (94.1), youngest girls (93.7) scored higher than youngest boys (92.0) and intermediate boys (93.0) scored slightly higher than intermediate girls (92.6).

These initial findings suggested that eldest siblings performed much better than other children, particularly so if they were girls. It was, however, noted that in fact a reversal of position occurred relating to the gender of intermediate siblings. This was regarded as negligible owing to the small difference in scores being only 0.4 Likewise a similar margin existed between all intermediates and all youngest and no significance was attached to these results, which are displayed in Table 3.

T A B L E 3

ACADEMIC PERFORMANCE (SPELLING)
AND
SIBLING STATUS

Sample . Mean 94.3

Number		Mean Scores
82	Girls	96.1
100	Boys	93.0
71	Eldests	96.2
69	Youngests	92.4
42	Intermediates	92.8
31	Eldest Girls	100.9
40	Eldest Boys	94.1

Number		Mean Scores
30	Youngest Girls	93.7
39	Youngest Boys	92.0
21	Intermediate Girls	92.6
21	Intermediate Boys	93.0

The sub-division of intermediate children into birth-rank groups classified as 'early-born' or 'late-born' did appear to be of significance. The mean score of the former was 96.9 compared to that of the low birth-order siblings, which was 86.7. In terms of gender, early-born girls attained a score of 95.3 whilst early born boys superceded them by 3 points (98.3). Late-born girls scored 89.0 and late-born boys had a mean quotient of 84.1. Bearing in mind that the sample . mean score was 94.3, it would seem apparent that late born intermediate siblings perform poorly academically (especially so if male) in relation to all other sibling status groups as shown in Table 4.

T A B L E 4

ACADEMIC PERFORMANCE (SPELLING)
OF EARLY-BORN INTERMEDIATE SIBLINGS AND LATE BORN
INTERMEDIATE SIBLINGS

Sample : . Mean 94.3

Number		Mean Scores
25	Early-Born Intermediates (Boys and Girls)	96.9
17	Late-Born Intermediates (Boys and Girls)	86.7
12	Early-Born Intermediate Girls	95.3
13	Early-Born Intermediate Boys	98.3
9	Late-Born Intermediate Girls	89.0
8	Late-Born Intermediate Boys	84.1

Birth Order

The arrangement and analysis of scores appertaining to an individual's ordinal position or birth order painted a clear, precise picture as seen in Table 5.

TABLE 5

ACADEMIC PERFORMANCE (SPELLING) AND THE BIRTH ORDER OF SIBLINGS

Sample _ Mean 94.3

	Mean Scores					
Ordinal Position	No.	Girls	No.	Boys	No.	Girls and Boys
1	31	100.1	40	96.4	71	98.0
2	32	96.0	36	97.0	68	96.6
3	8	94.8	13	84.0	21	88.1
4	5	83.6	6	87.0	11	85.5
5	3	77.7	1	109.0	4	85.5
6	1	93.0			1	93.0
7	1	89.0			1	89.0
8			1	87.0	1	87.0
9	1	93.0	2	70.5	3	78.0
10			1	97.0	1	97.0

The overall trend was for the spelling quotient to decrease as ordinal position decreased, although where distortions to the pattern did exist, this was accounted for as a consequence of the small sample size. With reference to gender, girls tended to score higher than boys of the corresponding ordinal position, and the overall trend of decreasing spelling quotient with decreasing birth order was reflected more plainly in respect of females compared to males. Additionally it was perceived that children occupying an ordinal position later than second-born tended to score below the sample _ ' mean.

Family Configuration

Table 6 indicates spelling performance with regard to family configuration. All first-born and second-born siblings, irrespective of their family size, achieved scores above the mean, with the exception of those children whose configuration was represented by the symbol 1/3 (first-born child of a family of 3 children) who attained a mean quotient 0.1 less than 94.0.

TABLE 6

ACADEMIC PERFORMANCE (SPELLING) AND FAMILY CONFIGURATION

Sample Mean 94.3

Configuration	Mean Scores					
	No.	Girls	No.	Boys	No.	Girls and Boys
1/2	26	99.8	30	98.5	56	99.1
1/3	5	101.8	10	89.9	15	93.9
2/2	20	96.5	24	95.6	44	95.9
2/3	8	95.1	8	95.0	16	95.1
2/4	3	85.3	3	106.3	6	95.8
2/5	1	127.0	1	123.0	2	125.0
3/3	6	93.5	9	84.4	15	88.1
3/4	2	98.5			2	98.5
3/5			3	85.3	3	85.3
3/6			1	76.0	1	76.0
4/4			4	86.3	4	86.3
4/5	3	83.3	2	88.5	5	85.4
4/6	2	84.0			2	84.0
5/5	3	77.7	1	109.0	4	85.6
6/7	1	93.0			1	93.0
7/7	1	89.0			1	89.0
8/9			1	87.0	1	87.0
9/9			1	85.0	1	85.0
9/10			1	56.0	1	56.0
9/14	1	93.0			1	93.0
10/13			1	97.0	1	97.0

In terms of sex difference, the results produced by girls, whose ordinal position was first, second or third, disregarding family size, were better than the boys. The only other possibly distinguishing feature of the data, which linked performance in spelling to family configuration, seemed to be that the higher the birth order of a sibling and the smaller his or her family-size, the more able he or she appeared to be academically in terms of spelling.

Family Size

The size of family to which a subject belonged (that is the number

of siblings contained therein) did seem to have some bearing upon performance. It was quite remarkable that children from family sizes of 2 and 13 (although in the latter case the sample was limited to one individual) scored above the sample mean.

TABLE 7

ACADEMIC PERFORMANCE (SPELLING) AND FAMILY SIZE

Sample : Mean 94.3

	Mean Scores					
Family Size	No.	Girls	No.	Boys	No.	Girls and Boys
2	46	98.3	54	97.2	100	97.7
3	19	96.4	27	89.6	46	92.3
4	5	90.6	7	94.9	12	93.1
5	7	87.1	7	95.0	14	91.0
6	2	84.0	1	76.0	3	81.3
7	2	91.0			2	91.0
9			2	86.0	2	86.0
10			1	56.0	1	56.0
13			1	97.0	1	97.0
14	1	93.0			1	93.0

The general trend was for scores to decrease as family size increased, although slight fluctuations were evident. In the case of girls especially, the inverse proportion of scores and family size was clearly obvious. Furthermore girls from families of 2 or 3 were superior to their male counterparts, but surprisingly boys from families of 4 or 5 did better than girls as depicted in Table 7.

SELF-ESTEEM

Sibling Status

With reference to self-esteem the sample mean was calculated from the 182 scores, which was 13.6. Overall, boys had a mean score of 14.8 and girls had a mean score of 12.1. . In relation to sibling status, eldests had a mean score of 14.3, youngests totalled 14.1, and well below these scores and the sample

mean were intermediates with 11.6 points.

TABLE 8

SELF-ESTEEM AND SIBLING STATUS

Sample . Mean 13.6

Number		Mean Scores
82	Girls	12.1
100	Boys	14.8
71	Eldests	14.3
69	Youngests	14.1
42	Intermediates	11.6
31	Eldest Girls	13.3
40	Eldest Boys	15.0
30	Youngest Girls	12.1
39	Youngest Boys	15.7
21	Intermediate Girls	10.5
21	Intermediate Boys	12.7

Further investigation divulged that eldest boys (15.0) scored higher than eldest girls (13.3), youngest boys (15.7) scored higher than youngest girls (12.1), and intermediate boys (12.7) scored higher than intermediate girls (10.5). At this point it was evident that irrespective of sibling status, boys had higher levels of self-esteem than girls, and additionally, intermediate children were greatly lacking in self-esteem compared to other sibs, as seen in Table 8.

The partitioning of intermediate siblings as 'early-born' and 'late-born' (the criteria for which was explained previously) emphasised the apparent disadvantage of being an intermediate child of low rank.

T A B L E 9

SELF-ESTEEM
OF EARLY-BORN INTERMEDIATE SIBLINGS AND LATE-BORN INTERMEDIATE SIBLINGS

Sample : Mean 13.6

Number		Mean Scores
25	Early-Born Intermediates (Boys and Girls)	12.2
17	Late-Born Intermediates (Boys and Girls)	10.7
12	Early-Born Intermediate Girls	10.8
13	Early-Born Intermediate Boys	14.1
9	Late-Born Intermediate Girls	11.1
8	Late-Born Intermediate Boys	10.3

Early-Born intermediates attained 12.2 points (girls 10.8, boys 14.1), whilst the late-borns accumulated a points total of 10.7 (girls 11.1 and boys 10.3). Contrary to the sex difference pattern of the overall sample, late-born intermediate boys were drastically lacking in self-esteem. Table 9 relates specifically to the sub-division of intermediate children and their levels of self-esteem.

Birth Order

With regard to an individual's birth order and self-esteem (refer to Table 10) it can be seen that as ordinal position decreases the level of self-esteem does likewise. In terms of gender, all girls, no matter what birth order, score below the mean, and boys of a corresponding position generally do better than their female counterparts.

T A B L E 10

SELF-ESTEEM
AND
THE BIRTH ORDER OF SIBLINGS

Sample Mean 13.6

			Mean Scores			
Ordinal Position	No.	Girls	No.	Boys	No.	Girls and Boys
1	31	12.5	40	15.5	71	14.2

Ordinal Position	No.	Girls	No.	Boys	No.	Girls and Boys
2	32	11.6	36	15.4	68	13.6
3	8	12.4	13	16.1	21	14.7
4	5	10.8	6	11.8	11	11.4
5	3	8.3	1	14.0	4	11.2
6	1	9.0			1	9.0
7	1	11.0			1	11.0
8			1	6.0	1	6.0
9	1	12.0	2	11.6	3	11.8
10			1	12.0	1	12.0

First-born, second-born and third-born children tend to have higher levels of self-esteem than later born children, and although some fluctuation does occur, this is attributed to the restriction in the numbers of children occupying ordinal positions 7, 8, 9 and 10.

Family Configuration

After examination of the data in Table 11, relating to family configuration, it was concluded that the emergence of any specific pattern was not visibly recognisable.

TABLE 11

SELF-ESTEEM
AND
FAMILY CONFIGURATION

Sample Mean 13.6

			Mean Scores			
Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
1/2	26	12.7	30	16.2	56	14.5
1/3	5	11.6	10	13.5	15	12.9
2/2	20	12.7	24	16.3	44	14.7
2/3	8	10.5	8	13.4	16	12.0
2/4	3	8.7	3	13.3	6	9.3
2/5	1	6.0	1	17.0	2	11.5
3/3	6	12.3	9	15.4	15	14.2
3/4	2	12.5			2	12.5
3/5			3	13.7	3	13.7
3/6			1	20.0	1	20.0

Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
4/4			4	14.3	4	14.3
4/5	3	7.6	2	7.0	5	7.4
4/6	2	15.5			2	15.5
5/5	3	8.3	1	14.0	4	9.8
6/7	1	9.0			1	9.0
7/7	1	11.0			1	11.0
8/9			1	6.0	1	6.0
9/9			1	13.0	1	13.0
9/10			1	10.0	1	10.0
10/14	1	12.0			1	12.0

However, it is felt that it is worthwhile commenting upon the two statistics which may have implications for stage two of this investigation. In terms of family configuration and with the exception of the symbolic position 4/5, boys scored higher than the corresponding girls in the 7 cases where comparisons could be made. Secondly, it would seem that to some degree, the higher the ordinal position of an individual and the lower his or her family size, the greater the level of self-esteem possessed by him or her.

Family Size

The evidence supplied in Table 12 shows that as family size increases the level of self-esteem decreases for all members of the family.

T A B L E 12

SELF-ESTEEM
AND
FAMILY SIZE

Sample . Mean 13.6

			Mean Scores			
Family Size	No.	Girls	No.	Boys	No.	Girls and Boys
2	46	12.6	54	16.2	100	14.6
3	19	11.4	27	14.1	46	13.0
4	5	10.2	7	12.4	12	11.5
5	7	7.7	7	12.2	14	10.0
6	2	15.5	1	20.0	3	17.0

Family Size	No.	Girls	No.	Boys	No.	Girls and Boys
7	2	10.0			2	10.0
9			2	9.5	2	9.5
10			1	10.0	1	10.0
13			1	12.0	1	12.0
14	1	12.0			1	12.0

Moreover boys from the equivalent family size as girls have higher self-esteem scores in every case. Only children belonging to a family size of 2 or 6 scored above the mean score of 13.6, although boys with 2 other siblings also gained a score beyond the sample mean.

The data presented in this chapter has indicated a number of trends which can be summarised in general terms under the following headings.

Sibling Status

1. Girls are better than boys in spelling, and the superiority of eldest girls is pronounced.

2. Boys have a higher level of self-esteem than girls, and intermediate girls in particular have comparatively poor levels of self-esteem.

3. Eldests perform much better academically than youngests and intermediates who have similar scores.

4. Eldests have a slightly higher level of self-esteem than youngests which is much higher than intermediates.

5. Early-born intermediate sibs attain a much greater spelling quotient than late-born intermediate sibs.

6. Early-born intermediate sibs are much higher in self-esteem than late-born sibs.

7. Early-born boys achieve the highest spelling score amongst intermediate children and late-born boys perform particularly badly.

8. The pattern illustrated in 7 is repeated in self-esteem levels.

Birth Order

1. Girls tend to score higher than boys of the corresponding ordinal position in spelling.

2. Boys tend to score higher than their female counterparts in self-esteem.

3. As ordinal position decreases, academic performance decreases.

4. As ordinal position decreases, the level of self-esteem decreases.

5. Children occupying an ordinal position lower than second-born tend to score below the sample mean in spelling.

6. Children occupying an ordinal position lower than third-born tend to have lower levels of self-esteem.

Family Configuration

1. In general terms, girls occupying ordinal positions 1, 2 or 3 are better spellers than the corresponding boys, discounting size of family.

2. Seemingly boys have a higher level of self-esteem compared to their female counterparts in relation to every family configuration bar one.

3. First and second born children of no specific family size score above the sample mean in spelling.

4. The higher the birth order of an individual and the smaller his or her family size, the greater the success in spelling.

5. To a lesser degree the higher the ordinal position of an individual and the lower his or her family size, the greater

the level of self-esteem possessed by him or her.

Family Size

1. As family size increases an individual's spelling quotient decreases.

2. Increasing family-size also has the same impact upon self-esteem scores.

3. Subjects in 2 or 3 child families are better spellers if they are girls, and in contrast to this, those in 4 or 5 child families are better spellers if they are boys.

4. Boys from the equivalent family size as girls have higher levels of self-esteem.

5. Children belonging to families of 2 sibs are the majority of subjects who attain a spelling quotient higher than the sample mean score.

6. Individuals predominantly from 2-child families gain self-esteem scores above the sample mean.

IV SIBLING STATUS, ACADEMIC PERFORMANCE (SPELLING, READING AND MATHEMATICS) AND SELF-ESTEEM

IN ONE SCHOOL

The first sibling structure variable dealt with in stage 2 relates sibling-status to academic performance and self-esteem.

Spelling

With regard to spelling attainment (sample population mean 94.9) and sibling-status, Table 13 shows that in terms of gender girls are better than boys.

TABLE 13

ACADEMIC PERFORMANCE (SPELLING)
AND
SIBLING STATUS

Sample Mean 94.9

Number		Mean Scores
30	Girls	97.3 *
20	Boys	91.2 *
14	Eldests	105.8
18	Youngests	89.9
18	Intermediates	91.6
12	Eldest Girls	104.3
2	Eldest Boys	114.5
9	Youngest Girls	90.9
9	Youngest Boys	88.9
9	Intermediate Girls	94.5
9	Intermediate Boys	88.5

Also it can be seen that eldests attain a higher score than intermediates who score slightly higher than youngests. Eldest boys are better spellers than eldest girls, youngest girls are better spellers than youngest boys and intermediate girls are better spellers than intermediate boys. In acceptance of the limitations of the sample sizes it is discernible that a general pattern (which is not entirely consistent), does exist and resembles that produced in stage one.

* Difference in scores not significant, all other scores not statistically analysed.

The sub-division of intermediate children into birth-rank groups classified as early-born or late-born, as depicted in Table 14, displays a wide range in the performance of siblings so grouped.

T A B L E 14

ACADEMIC PERFORMANCE (SPELLING)
OF EARLY-BORN INTERMEDIATE SIBLINGS AND LATE-BORN
INTERMEDIATE SIBLINGS

Sample Mean 94.9

Number		Mean Scores
8	Early-Born Intermediates (Boys and Girls)	97.8
10	Late-Born Intermediates (Boys and Girls)	86.6
3	Early-Born Intermediate Girls	106.0
5	Early-Born Intermediate Boys	93.6
6	Late-Born Intermediate Girls	88.8
4	Late-Born Intermediate Boys	83.3

Early-born siblings achieve 97.8 in spelling whilst the late-born intermediate siblings acquire 86.6 points. This is in fact well below the sample mean of 94.9. Moreover, a sex difference in attainment with regard to the two groups is evident. Early-born girls score 106.0 and early-born boys score 93.6, whereas late-born girls total 88.8 points and below this are late-born boys whose score is 83.3 for spelling.

Reading

In respect of reading scores and sibling-status Table 15 shows that for this test of academic performance the sample mean is 93.3, with girls scoring 94.9 and boys scoring 90.9.

TABLE 15

ACADEMIC PERFORMANCE (READING)
AND
SIBLING STATUS

Sample . Mean 9 .

Number		Mean Scores
30	Girls	96.9 *
20	Boys	90.9 *
14	Eldests	102.8
18	Youngests	90.9
18	Intermediates	91.7
12	Eldest Girls	101.9
2	Eldest Boys	108.0
9	Youngest Girls	95.5
9	Youngest Boys	86.2
9	Intermediate Girls	91.5
9	Intermediate Boys	91.8

Once again eldests confirm their academic superiority by obtaining a score well above the mean, as opposed to both youngest and intermediates. However, the latter group of children do improve slightly upon their performance recorded in spelling, and their lead over youngest compared to that produced in spelling is somewhat increased.

Gender-wise, eldest boys are better than eldest girls, but, as previously indicated, the reliability of a limited sample is questionable. Insofar as youngest siblings are concerned with reading, it is noted that girls score higher than boys. Intermediate siblings however, reach a reading level that hardly differentiates between the two sexes (girls 91.5 and boys 91.8)

An analysis of the data, arranged in relation to intermediates of high and low birth rank, serves as proof in support of previous findings which highlights the superiority of early-born intermediates

* Difference in scores significant, all other scores not statistically analysed.

(mean score 98.0) to late-born intermediates (mean score 86.6). All scores appear in Table 16.

TABLE 16

ACADEMIC PERFORMANCE (READING)
OF EARLY-BORN INTERMEDIATE SIBLINGS AND LATE-BORN
INTERMEDIATE SIBLINGS

Sample Mean 94.5

Number		Mean Scores
8	Early-Born Intermediates (Boys and Girls)	98.0
10	Late-Born Intermediates (Boys and Girls)	86.6
3	Early-Born Intermediate Girls	101.0
5	Early-Born Intermediate Boys	96.2
6	Late-Born Intermediate Girls	86.8
4	Late-Born Intermediate Boys	86.3

Mathematics

Mathematics was included in Stage 2 as a further measure of academic performance, as it was felt that a curricular area less-biased towards language skills (such as spelling and reading) might portray a different pattern gender-wise. To some extent such feelings were well founded as in relation to the sample mean score of 100.7, girls (101.4) score only 1.7 marks higher than boys (99.7) which is the smallest academic margin between the two sexes to date. The recurrent trend of eldests performing best of all (108.6) is repeated, but intermediates (100.4) score much higher than youngests (94.8) who do rather poorly as seen in Table 17.

TABLE 17

ACADEMIC PERFORMANCE (MATHEMATICS)
AND
SIBLING STATUS

Sample Mean 100.7

Number		Mean Scores
30	Girls	101.4 *
20	Boys	99.7 *

* Difference in scores not significant; all other scores not statistically analysed

Number		Mean Scores
14	Eldests	108.6
18	Youngests	94.8
18	Intermediates	100.4
12	Eldest Girls	106.7
2	Eldest Boys	120.0
9	Youngest Girls	96.8
9	Youngest Boys	92.7
9	Intermediate Girls	98.8
9	Intermediate Boys	102.1

Eldest boys who excel in all tests academically, have a mean score of 120.0 and their female counterparts achieve a reasonably high standard by scoring 106.7. Youngest girls (96.8) as on the previous two tests overshadow youngest boys (92.7, but intermediate boys (102.1) score above intermediate girls (98.8) and also above the sample mean score of 100.7. This is a significant reversal of the position achieved in spelling and reading with regard to sibling status, which is also duly exhibited in Table 17.

As a result of intermediate children's relatively high overall mean score, those scores seen in Table 18, relating to high birth rank intermediates (mean score 103.4) and low birth rank intermediates (mean score 98.1) are effectively high also.

TABLE 18

ACADEMIC PERFORMANCE (MATHEMATICS) OF EARLY-BORN INTERMEDIATE SIBLINGS AND LATE-BORN INTERMEDIATE SIBLINGS

Sample Mean 100.7

Number		Mean Scores
8	Early-Born Intermediates (Boys and Girls)	103.4
10	Late-Born Intermediates (Boys and Girls)	98.1
3	Early-Born Intermediate Girls	101.7
5	Early-Born Intermediate Boys	104.5

Number		Mean Scores
6	Late-Born Intermediate Girls	97.4
4	Late-Born Intermediate Boys	99.0

In assessment of these results relating to mathematical performance and sibling status, it would seem that boys do better than girls (contrary to earlier findings) and indeed intermediate siblings attain far higher scores than upon the two other measures of performance which are biased towards language skills.

Self-Esteem

The last area of this chapter, that is concerned with family constellation and performance, deals with self-esteem and sibling status. In respect of gender it was discovered that girls have a mean score of 55.0, boys have a mean score of 47.9 and the overall sample mean score was 52.2. Furthermore eldests, yet again produce a high mean score (58.7), youngests succeed in scoring 54.5, whilst intermediates' low level of performance is reflected in their points total of 44.7.

TABLE 19

SELF-ESTEEM AND SIBLING STATUS

Sample Mean 52.2

Number		Mean Scores
30	Girls	55.0 *
20	Boys	47.9 *
14	Eldests	58.7
18	Youngests	54.5
18	Intermediates	44.7
12	Eldest Girls	58.9
2	Eldest Boys	57.5
9	Youngest Girls	58.1
9	Youngest Boys	50.8
9	Intermediate Girls	46.7
9	Intermediate Boys	42.8

* Difference in scores significant, all other scores not statistically analysed

In addition to these findings it is noted that eldest girls and eldest boys have scores of 58.9 and 57.5 respectively, youngest girls amass 58.1 points as opposed to youngest boys whose score is 50.8, and intermediate girls (46.7) and intermediate boys (42.8) achieve the lowest scores all of which appear in Table 19.

The arrangement of data (Table 20) relating to high and low birth rank intermediates again reveals low scores with regard to the latter group of children. These late-born intermediate siblings score a points total which is almost 10 marks below the sample mean score.

TABLE 20

SELF-ESTEEM

OF EARLY-BORN INTERMEDIATE SIBLINGS AND LATE-BORN INTERMEDIATE SIBLINGS

Sample . Mean 52.2

Number		Mean Scores
8	Early-Born Intermediates (Boys and Girls)	46.5
10	Late-Born Intermediates (Boys and Girls)	43.3
3	Early-Born Intermediate Girls	49.0
5	Early-Born Intermediate Boys	45.0
6	Late-Born Intermediate Girls	45.5
4	Late-Born Intermediate Boys	40.0

In conncection with the sex difference in scores of these groupings, early-born intermediate girls obtain 49.0 points in comparison to early-born intermediate boys whose total is 45.0. The performance of late-born intermediate children is weaker than that of the same sexed sibling within the former group.

To summarise the trends of this chapter, a list has been drawn up to highlight the main points.

1. The test scores of girls are slightly better than those of boys in mathematics, and especially so in spelling, reading and

self-esteem.

2. Eldests are far superior to youngest and intermediates on all measures of performance.

3. Intermediates attain higher academic scores compared to youngests, although the group mean scores of both is below the sample mean in all areas.

4. Eldests and youngests achieve a points total in self-esteem above the sample mean of 52.2, but intermediates score well below this figure.

5. Early-born intermediate siblings are superior to late-born intermediate siblings on all measures of performance.

6. Early-born intermediates score above the sample mean in all academic areas in contrast to late-born intermediates.

7. Both rank order groupings of intermediate siblings score below the mean of 52.2 in self-esteem.

8. Early and late born girls are superior to their male counterparts in spelling, reading and self-esteem.

9. Early and late born boys are superior to girls of the corresponding rank in mathematics.

Items 1, 2 and 5 confirm trends revealed in Stage One and summarised on pages 45 and 46.

V BIRTH-ORDER, ACADEMIC PERFORMANCE (SPELLING, READING AND MATHEMATICS) AND SELF-ESTEEM

IN ONE SCHOOL

The subjects' scores with regard to all 4 tests were analysed in relation to the various birth orders or ordinal positions irrespective of family size.

Spelling

Table 21 shows that those children who are first-borns, and who are also identified as eldests in the previous chapter, score well above the sample mean of 94.9. Gender wise boys who occupy an ordinal position of first achieve 114.5 points whilst girls obtain 104.3. However, as indicated earlier a discrepancy may exist owing to the limited sample (2) of first-born males.

T A B L E 21

SPELLING PERFORMANCE AND BIRTH - ORDER

Sample . . Mean 94.9

Ordinal Position	No.	Girls	No.	Boys	No.	Girls and Boys
1	12	104.3	2	114.5	14	105.8
2	6	99.3	5	86.6	11	93.5
3	6	81.8	6	89.1	12	85.5
4	3	92.6	6	89.3	9	90.4
5	1	100.0			1	100.0
6	1	105.0			1	105.0
7	1	99.0			1	99.0
8			1	97.0	1	97.0

Second-born siblings have a mean score of 93.5 with girls surpassing boys quite emphatically. Third-born children produced a mean score of 85.5 and in contrast to the previous result boys attain a higher score than girls. Children who occupy the ordinal position of fourth have a mean score of 90.4, where girls perform slightly better than boys in this instance.

The remaining ordinal positions of fifth, sixth, seventh and eighth are of such a restricted sample size that no significance can be attached to any of the results. Thus the main conclusion drawn from this specific analysis of spelling performance and birth-order

is that in general first-born children, and to a lesser extent second-born children, do better academically than do siblings of other ordinal positions.

Reading

In respect of reading performance it was discovered that first-borns attain a total of 102.8 points well above the sample mean score of 94.5. Children whose numerical birth-order is second, achieve 93.1 marks, with girls scoring much higher than boys, as seen in Table 22 below.

TABLE 22

READING PERFORMANCE AND BIRTH - ORDER

Sample . Mean 94.5

Ordinal Position	No.	Girls	No.	Boys	No.	Girls and Boys
1	12	101.8	2	108.0	14	102.8
2	6	96.2	5	89.4	11	93.1
3	6	86.8	6	87.6	12	87.2
4	3	86.6	6	89.2	9	88.3
5	1	107.0			1	107.0
6	1	106.0			1	106.0
7	1	113.0			1	113.0
8			1	94.0	1	94.0

The mean scores of third-born siblings (87.2) are very similar to those of fourth-born children who obtain a mean score of 88.3. The regression in sample size appertaining to the remaining ordinal positions once again casts doubt upon the reliability of these scores in terms of being truly representative of the population. Nevertheless these are outlined above.

Table 22, which displays all scores in relation to reading performance and birth-order, suggests that once again first and second born siblings are better than children of other ordinal positions. Additionally it can be perceived that as ordinal position decreases, there is a slight tendency for the level of academic performance to decrease.

Mathematics

Table 23 shows mathematical performance in connection with birth-order.

TABLE 23

MATHEMATICAL PERFORMANCE AND BIRTH - ORDER

Sample · Mean 100.7

Ordinal Position	No.	Girls	No.	Boys	No.	Girls and Boys
1	12	106.7	2	120.0	14	108.6
2	6	96.0	5	98.0	11	96.9
3	6	94.3	6	95.8	12	95.1
4	3	93.0	6	97.1	9	95.7
5	1	101.0			1	101.0
6	1	109.0			1	109.0
7	1	130.0			1	130.0
8			1	105.0	1	105.0

Those children who are first-born score 108.6, being 7.9 points above the sample mean of 100.7. The boys of this ordinal position attain 120.0 whilst the corresponding girls score 106.7. Second-born children have a mean score of 96.9 (boys 98.0 and girls 96.0) whilst in terms of the gender of third-born siblings, whose mean score was slightly less, boys obtain 95.8 and girls obtain 94.3. Fourth-born subjects have a mean score of 95.7, with boys scoring 97.1 and girls 93.0. In the case of siblings who occupy the other ordinal positions, namely a fifth-born girl, a sixth-born girl, a seventh-born girl and an eighth-born boy, no importance was placed upon their solitary scores.

After close scrutiny of Table 23, it can be noted that academic performance in mathematics tends to decline as ordinal position decreases, a trend which is especially well reflected in the girls' scores. Furthermore boys' scores are higher than the corresponding girls' scores regarding ordinal position, and the superiority of of first-born children over those of different birth-orders is evident.

Self-Esteem

In association of birth-order with self-esteem (sample mean 52.2), as portrayed in Table 24, it is discernible that first-born boys score slightly lower than first-born girls and the arithmetical mean of all first-borns is 58.7.

TABLE 24

SELF - ESTEEM AND BIRTH - ORDER

Sample Mean 52.2

Ordinal Position	No.	Girls	No.	Boys	No.	Girls and Boys
1	12	58.9	2	57.5	14	58.7
2	6	51.7	5	50.0	11	51.0
3	6	54.2	6	45.0	12	49.5
4	3	52.3	6	45.3	9	47.7
5	1	56.0			1	56.0
6	1	56.0			1	56.0
7	1	38.0			1	38.0
8			1	51.0	1	51.0

Second-born children score 51.0 points with girls achieving 51.7 and boys 50.0, thus no real distinction can be made between the sexes insofar as these scores are concerned. Third-born boys and third-born girls score 45.0 and 54.2 respectively resulting in a combined mean score of 49.5. Siblings whose ordinal position is fourth totalled a mean score of 47.7 with boys obtaining 45.3 points and girls 52.3. The girls whose ordinal position was fifth, sixth or seventh score 56.0, 56.0 and 38.0 respectively, whilst the eighth-born boy produces a test score of 51.0.

An examination of these results tends to infer that as ordinal position decreases, self-esteem decreases. Once again the level of performance of first-born children is higher than that of other subjects who are of a different birth-order grouping. Additionally, girls score higher than boys of the corresponding ordinal position.

In summary of academic performance (spelling, reading and mathematics) and self-esteem in relation to birth-order, the following trends are re-stated:-

1. First-born children and to a lesser degree second-born children perform better academically (in spelling, reading and mathematics) than those of other ordinal positions.

2. First-born children have a higher level of self-esteem compared to all other siblings.

3. As ordinal position decreases, academic performance (in reading and mathematics) tends to decrease.

4. As ordinal position decreases, the level of self-esteem tends to decrease.

5. The academic performance (in mathematics) of boys compared to girls of the corresponding ordinal position is higher.

6. The level of self-esteem possessed by girls is higher than that possessed by boys of the corresponding ordinal position.

Items 1, 2, 3 and 4 confirm trends revealed in Stage One and summarised on page 46.

VI FAMILY CONFIGURATION, ACADEMIC PERFORMANCE (SPELLING, READING AND MATHEMATICS) AND SELF-ESTEEM

IN ONE SCHOOL

The family configuration appertaining to a subject was determined by gender, ordinal position and family size. This was analysed in relation to the 4 measures of performance, and each respective configuration was represented symbolically. For example 1/3 G indicated a first-born girl belonging to a family consisting of 3 siblings, and 4/5 B related to a fourth-born boy with 4 additional siblings totalling 5 altogether etc. Thus with regard to the symbol the numerator referred to a subject's ordinal position, the denominator stated the family size and the letter denoted the gender.

Spelling

In connection with spelling it is noted that the scores of subjects whose configurations are 1/2 (112.0), 1/3 (96.8), 1/4 (110.6), 1/5 (102.3) are all the above the sample mean of 94.9. These results reinforce the viewpoint that eldests perform better than siblings from other configurations and family size does not appear to have any effect upon their performance. No comparisons can be made between boys and girls who occupy these configurations, as the low sample size in each instance does not lend itself to further investigation.

A similar picture to that painted above exists with reference to last-born or youngest children. The size of family from which they come seems to be of little consequence, and once again no general trend is apparent with regard to gender.

TABLE 25

SPELLING PERFORMANCE
AND
FAMILY CONFIGURATION

Sample · Mean 94.9

Mean Scores

Family Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
1/2	2	112.5	1	111.0	3	112.0
1/3	4	96.8			4	96.8
1/4	4	108.7	1	118.0	5	110.6
1/5	2	102.3			2	102.3
2/2	3	92.7	1	72.0	4	87.5

Family Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
2/3	1	116.0	3	91.3	4	97.5
2/4	1	112.0	1	87.0	2	99.5
2/5	1	90.0			1	90.0
3/3	3	77.0	4	86.5	7	82.4
3/4	2	85.5			2	85.5
3/5	1	89.0	1	82.0	2	85.5
3/7			1	107.0	1	107.0
4/4	1	104.0	3	95.0	4	97.0
4/5	1	85.0	2	86.5	3	86.0
4/6	1	89.0	1	78.0	2	83.5
5/5	1	100.0			1	100.0
6/6	1	105.0			1	105.0
7/9	1	99.0			1	99.0
8/8			1	97.0	1	97.0

In the final analysis of spelling performance and family configuration it was decided to undertake a two-way examination of the remaining subjects' scores by scrutinising the data in Table 25 as described hereafter. Initially a comparison was made between those subjects of differing birth-orders whose family size was identical, for example those children labelled 1/4, 2/4, 3/4, 4/4 and so on. Secondly, an approach was taken that concentrated upon subjects of the same ordinal position who stemmed from different family sizes, such as those depicted as follows:- 2/2, 2/3, 2/4 and 2/5 etc.

It was discovered that 1/2 children are better than 2/2 children and girls produce higher scores than boys. In 3 child families the scores are as follows:- 1/3 - 96.8, 2/3 - 97.5, 3/3 - 82.4. Similarly no distinct pattern is evident in terms of ordinal position and family size, as can be seen from the next set of results:- 1/4 - 110.6, 2/4 - 99.5, 3/4 - 85.5, 4/4 - 97.0. Children belonging to 5 child families score as listed:- 1/5 - 102.3, 2/5 - 90.0, 3/5 - 85.5, 4/5 - 86.0, 5/5 - 100, and the remaining configurations are recorded as follows:- 4/6 - 83.5, 6/6 - 105.0, 3/7-107.0, 8/8 - 97.0, 7/9 - 99.0.

The second approach in relation to the data produced the following scores with regard to second-born children:- 2/2 - 87.5, 2/3 - 97.5,

2/4 - 99.5, 2/5 - 90.0. In all possible cases of comparison, girls achieved higher scores than boys. The results of third and fourth born siblings are exhibited as follows:- 3/3 - 82.4, 3/4 - 85.5, 3/5 - 85.5, 3/7 - 107.0, 4/4 - 97.0, 4/5 - 86.0, 4/6 - 83.5. No distinctive features can be detected in relation to these scores, nor are any identified insofar as the remaining positions are concerned:- 5/5 - 100.0, 6/6 - 105.0, 7/9 - 99.0, 8/8 - 97.0. On reflection it is felt that very little can be attached to these results, but despite this, the data connected with reading is analysed in the same manner in the hope of obtaining more significant findings.

Reading

As in the case of spelling it is evident that all first-born children irrespective of family size, have mean reading scores above the sample mean of 94.5.

TABLE 26

READING PERFORMANCE AND FAMILY CONFIGURATION

Sample . Mean 94.5

Mean Scores

Family Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
1/2	2	99.5	1	109.0	3	102.3
1/3	4	104.3			4	104.3
1/4	4	100.0	1	107.0	5	101.4
1/5	2	103.5			2	103.5
2/2	3	91.3	1	74.0	4	87.0
2/3	1	107.0	3	95.7	4	98.5
2/4	1	107.0	1	86.0	2	96.5
2/5	1	89.0			1	89.0
3/3	3	86.6	4	83.5	7	84.8
3/4	2	87.5			2	87.5
3/5	1	86.0	1	84.0	2	85.0
3/7			1	108.0	1	108.0
4/4	1	113.0	3	91.3	4	96.8
4/5	1	75.0	2	86.5	3	82.7

Family Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
4/6	1	72.0	1	88.0	2	80.0
5/5	1	107.0			1	107.0
6/6	1	106.0			1	106.0
7/9	1	113.0			1	113.0
8/8			1	94.0	1	94.0

These scores have been extracted from the above table to highlight the attainment of eldest children with reference to their family configuration:- 1/2 - 102.3, 1/3 - 104.3, 1/4 - 101.4, 1/5 - 103.5.

No inferences can be drawn from the results of youngest children other than to state that girls are possibly better readers than boys of the same familial position. It is noted, however, that within 2 child families, first-born children are superior to second-borns. In a 3 child family a regression in scores with decreased ordinal position can be witnessed, coupled with the tendency for girls to score higher than boys of the corresponding position.

Families comprising of 4 siblings perform as follows in relation to the configuration:- 1/4 - 101.4, 2/4 - 96.5, 3/4 - 87.5, and 4/4 - 96.8. Intermediate children in 5 child families perform weakly in relation to eldests and youngests as the results show:- 1/5 - 103.5, 2/5 - 89.0, 3/5 - 85.0, 4/5 - 82.7, 5/5 - 107.0. The scores of siblings from the remaining configurations deemed of no significance, are as indicated:- 4/6 - 80.0, 6/6 - 106.0, 3/7 - 108.0, 8/8 - 94.0 and 7/9 - 113.0.

A comparative analysis of second-born siblings of differing family sizes fails to reveal findings of any importance. However, it can be perceived that a slight tendency exists for girls to attain higher scores than corresponding boys. In general third-born children have particularly weak scores, and fourth-borns also tend to perform at a low level.

All other scores which were not regarded seriously, as a consequence of the limited sample size, can be referred to in Table 26. This bears all of the relevant data relating to family configuration and reading performance.

Mathematics

In contrast to an individual's performance on the previous two academic measures, his or her attainment in mathematics (sample mean 100.7) seems to be generally higher.

TABLE 27

MATHEMATICAL PERFORMANCE
AND
FAMILY CONFIGURATION

Sample . Mean . 100.7

Mean Scores

Family Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
1/2	2	119.0	1	117.5	3	118.5
1/3	4	105.0			4	105.0
1/4	4	103.4	1	122.5	5	107.2
1/5	2	104.5			2	104.5
2/2	3	90.3	1	86.5	4	89.4
2/3	1	110.5	3	103.5	4	105.3
2/4	1	90.0	1	93.0	2	91.5
2/5	1	104.5			1	104.5
3/3	3	93.5	4	92.8	7	93.1
3/4	2	93.0			2	93.0
3/5	1	99.0	1	85.0	2	92.0
3/7			1	119.0	1	119.0
4/4	1	109.5	3	90.7	4	95.4
4/5	1	89.5	2	98.0	3	95.2
4/6	1	80.0	1	115.0	2	97.5
5/5	1	101.0			1	101.0
6/6	1	109.0			1	109.0
7/9	1	130.0			1	130.0
8/8			1	105.0	1	105.0

All first-born children score above the mean score, with those belonging to a family size of 2 performing especially well in relation to the other eldests. Additionally it is noted that in the case of youngests, their scores increase as family size increases.

Sibings from 2 child families produce higher scores if they are first-born than if they are last-born, and girls compared to boys of the corresponding position tend to do better. Individuals from 3 child families do quite well mathematically as the tabulated data substantiates, and those from 4 child families tend to do well likewise.

In great contrast to the previous results produced in spelling and reading, subjects from 5 child families have much higher scores in mathematics. The other scores of siblings in relation to their family configuration are yet again better than those that were achieved in spelling and reading.

A study of children who occupy the same ordinal position of second-born, but belong to families varying in size, produces the following results:- 2/2 - 89.4, 2/3 - 105.3, 2/4 - 91.5, 2/5 - 104.5. Third-born children do less well , as their scores outline:- 3/3 - 93.1, 3/4 - 93.0, 3/5 - 92.0, 3/7 - 119.0. Fourth-born children attain slightly higher scores than third-borns, contrary to the position in respect of spelling and reading, as indicated by the next set of data:- 4/4 - 95.4, 4/5 - 95.2, 4/6 - 97.5. Finally the remaining scores are as follows:- 5/5 - 101.0, 6/6 - 109.0, 7/9 - 130.0, 8/8 - 105.0, which can be seen together with all other results associated with mathematical performance in Table 27.

Self-Esteem

The level of self-esteem was examined in relation to the subjects' family configurations, the procedure for which has already been described.

TABLE 28

SELF - ESTEEM
AND
FAMILY CONFIGURATION

Sample Mean 52.2

	Mean Scores					
Family Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
1/2	2	62.0	1	58.0	3	60.7
1/3	4	59.0			4	59.0

Family Configuration	No.	Girls	No.	Boys	No.	Girls and Boys
1/4	4	59.8	1	57.0	5	59.2
1/5	2	54.0			2	54.0
2/2	3	54.3	1	58.0	4	55.3
2/3	1	50.0	3	50.7	4	50.5
2/4	1	51.0	1	40.0	2	45.5
2/5	1	46.0			1	46.0
3/3	3	60.7	4	49.5	7	54.3
3/4	2	50.5			2	50.5
3/5	1	43.0	1	39.0	2	41.0
3/7			1	33.0	1	33.0
4/4	1	66.0	3	50.3	4	54.3
4/5	1	44.0	2	39.5	3	41.0
4/6	1	47.0	1	42.0	2	44.5
5/5	1	56.0			1	56.0
6/6	1	56.0			1	56.0
7/9	1	38.0			1	38.0
8/8			1	51.0	1	51.0

First and foremost it can be perceived that eldest children have the highest mean score (sample . mean 52.2) compared to other siblings. Youngest children have slightly lower scores and in the case of both groups, girls perform better on the test than boys of the corresponding familial configuration.

With regard to family size it is apparent that first-borns are higher in self-esteem than second-borns in 2 child families. In the case of 3 child families the first-born and last-born produce scores higher than that of the middle-born. This trend is also repeated in relation to 4 child families where intermediate children have lower levels of self-esteem than either younger siblings or older siblings. A slight deviation to this pattern is evident with reference to 5 child families, in that youngests score higher than eldests. However, of greater significance is the fact that middle-borns are still consistent in their attainment of low scores. The remaining scores, in relation to family configuration, do also to a small degree highlight the low self-esteem of intermediate children in relation to other siblings.

In terms of ordinal position it was discovered that in the case of second-born children there is a tendency for self-esteem to decline as family size increases:- 2/2 - 55.3, 2/3 - 50.5, 2/4 - 45.5, 2/5 - 46.0. This picture is even more striking in relation to third-borns, supported by the following results:- 3/3G - 60.7, 3/3B - 49.5, 3/4G - 50.5, 3/5G - 43.0, 3/5B - 39.0, 3/7B - 33.0. No further significance could be attached to the remaining data presented in Table 28, other than to re-emphasise the low performance of intermediate children and the tendency for girls to score higher than their male counterparts.

In summary of the trends in this chapter, points regarded as noteworthy are stated below.

Spelling

1. The family configuration relating to first-born children does not appear to affect their performance.

2. The family configuration relating to youngest children does not appear to affect their performance.

3. First-born children perform better than all other siblings irrespective of family configuration.

4. No pattern is evident in terms of gender with regard to the performance of first-born and youngest siblings.

5. Second-born girls, irrespective of family configuration, perform higher than the corresponding boys.

6. In 2 child families, first-borns perform better than second-borns, and girls tend to perform better than boys.

Reading

1. The family configuration relating to children does not appear to affect their performance.

2. Youngest girls belonging to the same familial configuration as youngest boys tend to perform higher.

3. Second-born girls irrespective of family configuration perform higher than the corresponding boys.

4. Third and fourth born children, irrespective of family configuration tend to perform poorly.

Mathematics

1. The level of a subject's performance in mathematics is generally higher than that of spelling and reading with regard to family configuration.

2. First-born children from 2 sib families perform better than first-borns from other family sizes.

3. Youngest children within large families perform higher than youngest children within small families.

4. In 2 child families, first-borns perform higher than second-borns, and girls perform higher than the corresponding boys.

5. In 5 child families, unlike spelling and reading, siblings perform quite highly.

Self-Esteem

1. First-born and youngest girls have higher self-esteem compared to boys of the same familial configuration.

2. Second-born children in small families have higher self-esteem than second-born children in large families.

3. Third-born children in small families have higher self-esteem than third-born children in large families.

4. In 2 sib families first-borns are higher in self-esteem than second-borns.

5. In 3, 4 and 5 sib families middle-born children have lower self-esteem compared to other siblings.

6. All other intermediate children, irrespective of family configuration, are low in self-esteem.

VII SIZE OF FAMILY, ACADEMIC PERFORMANCE (SPELLING, READING AND MATHEMATICS) AND SELF-ESTEEM IN ONE SCHOOL

The size of the family referred to the number of existing siblings (who were not necesaarily of the same abode), and discounted the presence of a single parent or both parents.

Spelling

No clear pattern appears to exist with regard to the results shown in Table 29.

T A B L E 29

SPELLING PERFORMANCE
AND
SIZE OF FAMILY

*Difference in scores not significant

Sample . . Mean 94.9

	Family Size	No.	Mean Scores: Girls	No.	Boys	No.	Girls and Boys	Grouped Families
Small Families (22)	2	5	100.6	2	91.5	7	98.0	92.7 *
	3	8	91.7	7	88.6	15	90.3	
Large Families (28)	4	8	102.7	5	98.0	13	100.9	96.8 *
	5	6	94.8	3	85.0	9	91.5	
	6	2	97.0	1	78.0	3	90.6	
	7			1	107.0	1	107.0	
	8			1	97.0	1	97.0	
	9	1	99.0			1	99.0	

Indeed the re-arrangement of this data, tabulated below in rank-order of attainment, reaffirms this viewpoint:-

Family Size	Mean Score
7	107.0
4	100.9
9	99.0
2	98.0
8	97.0
5	91.5
6	90.6
3	90.3

However, what is noticeable is that in terms of gender, girls from

every equivalent family size as boys, produce much better results in spelling. On average this sex difference in scores amounts to 6 whole points in favour of females, as illustrated below:-

Family Size	Girls	Boys	Difference
2	100.6	91.5	9.1
3	91.7	88.6	3.1
4	102.7	98.0	4.7
5	94.8	85.0	9.8
6	97.0	78.0	19.0
	Mean Difference		6.1

Reading

In relation to reading performance and Table 30, one also encounters some difficulty in recognising a pattern that is linked to family size.

TABLE 30

READING PERFORMANCE AND SIZE OF FAMILY

* Difference in scores not significant

Sample . Mean 94.5

	Family Size	No.	Mean Scores: Girls	No.	Boys	No.	Girls and Boys	Grouped Families
Small Families (22)	2	5	94.6	2	91.5	7	93.7	93.7 *
	3	8	98.0	7	88.7	15	93.8	
Large Families (28)	4	8	99.3	5	93.4	13	97.0	95.1 *
	5	6	94.0	3	85.7	9	91.2	
	6	2	89.0	1	88.0	3	88.6	
	7			1	108.0	1	108.0	
	8			1	94.0	1	94.0	
	9	1	113.0			1	113.0	

Once again it can be discerned that females tend to perform better academically than their male counterparts, but to a lesser degree

compared to spelling. The re-arrangement of the data appearing in Table 30 is exhibited below in the form of a descending reading-attainment scale with reference to family size:-

Family Size	Mean Score
9	113.0
7	108.0
4	97.0
8	94.0
3	93.7
2	93.6
5	91.2
6	88.6

When this set of data is compared to the corresponding set related to spelling, it can be noted that the rank orders of attainment are re-organised in respect of every family size.

The tabulation of reading scores below which indicates higher attainment for girls compared to corresponding boys is, as mentioned earlier, less pronounced than in spelling. Nevertheless a mean differential score of 4.0 points does arise.

Family Size	Girls	Boys	Difference
2	94.4	91.5	2.9
3	98.0	88.7	9.3
4	99.3	93.4	5.9
5	94.0	85.6	8.4
6	89.0	88.0	1.0
		Mean Difference	4.0

Mathematics

The association of mathematical performance with family size reveals that a small spread of scores exists in 2, 3, 4, 5 and 6 child families.

T A B L E 31

MATHEMATICAL PERFORMANCE
AND
SIZE OF FAMILY

* Difference in scores not significant

Sample Mean 100.7

Mean Scores

	Family Size	No.	Girls	No.	Boys	No.	Girls and Boys	Grouped Families
Small Families (22)	2	5	101.8	2	102.0	7	101.9	100.3 *
	3	8	101.4	7	97.4	15	99.5	
Large Families (28)	4	8	99.9	5	97.5	13	98.9	101.0 *
	5	6	100.5	3	93.6	9	98.2	
	6	2	94.5	1	115.0	3	101.3	
	7			1	119.0	1	119.0	
	8			1	109.0	1	109.0	
	9	1	130.0			1	130.0	

In considering Table 31 and by discarding the scores of the other larger sized families (as a consequence of the limited samples), it can be seen that there is a slight tendency for mathematical performance to decrease as family size increases. This trend is in stark contrast to that portrayed in spelling and reading. Furthermore, the superiority of girls over boys is not so strongly marked and in some instances (namely family sizes of 2 and 6) the reverse is true.

The final point with regard to mathematical performance and family size is that irrespective of each subject's number of siblings, he or she achieves a score that is either just below or well above the sample mean (100.7). Even more remarkable is the fact that this figure closely resembles that of the standardised population mean score for mathematical attainment, which is 100.0.

Self-Esteem

After careful inspection of self-esteem scores in relation to family size, it can be observed that on the one hand the results are likened to those obtained in spelling and reading, and yet on the other hand they reflect those produced in mathematics. In terms of gender (and

as with spelling and reading), girls tend to be higher in self-esteem compared to the corresponding boys. However, in connection with increased family size a slight tendency (much the same as in mathematical performance) exists for self-esteem scores to decline.

TABLE 32

SELF - ESTEEM
AND
SIZE OF FAMILY

*Difference in Scores significant

Sample Mean 52.2

Mean Scores

	Family Size	No.	Girls	No.	Boys	No.	Girls and Boys	Grouped Families
Small Families (22)	2	5	57.4	2	58.0	7	57.6	55.5 *
	3	8	58.5	7	50.0	15	54.5	
Large Families (28)	4	8	57.1	5	49.6	13	54.2	49.5 *
	5	6	41.8	3	39.3	9	41.0	
	6	2	51.0	1	42.0	3	48.3	
	7			1	33.0	1	33.0	
	8			1	51.0	1	51.0	
	9	1	38.0			1	38.0	

In addition to these findings, it is also noted that siblings from larger sized families appear to be lacking in high self-esteem compared to those in families of 4 children or less. This phenomenom is easily recognisable with regard to boys and can be seen in the above table.

In summary of this chapter the trends relating to family size are set out below:-

1. Girls of the equivalent family size as boys obtain much higher scores in terms of spelling and reading.

2. Girls of the equivalent family size as boys obtain slightly higher scores in terms of mathematics and self-esteem.

3. A slight tendency for mathematical performance and the level

of self-esteem to decline as the size of family increases is apparent.

4. The above trend is not discernible with regard to spelling and reading.

5. Performance in mathematics appears to be less influenced by the size of family. The majority of scores are either quite high or are slightly below the sample mean score.

6. The sample mean score of 100.7 in mathematics compares very favourably, and is almost parallel to the standardised population mean score of 100.0

7. In families comprising 2, 3 and 4 siblings, children generally attain higher scores than those from the remaining larger sized families.

8. Siblings within large families (especially in the case of boys) have self-esteem scores below the sample mean.

Items 3, 7 and 8 confirm trends revealed in Stage One and summarised on page 47.

VIII D I S C U S S I O N

This research has been based largely on samples of children attending the one primary school. This has the advantage that the several features of school organisation that are likely to influence the development of pupils' self-esteem are constant. It also allows the interpretation of the results of the research in terms of the one school and its catchment area. The main disadvantage is that the numbers of children involved are small, making it necessary to interpret the results with care and to regard some conclusions as tentative. While the test of self-esteem used is a reputable one it would be generally agreed that the aspects of performance at school involved are crucial to children's performance there, the limitations of methods of measuring both self-esteem and performance must also be recognised.

Accepting these limitations, there would appear to be grounds for concluding that within the schools concerned, there exists a positive relationship between children's performance at school as measured and their position in their families. Specific conclusions are difficult to make but in general it might be possible to conclude that the higher a child's position in his family, the higher his performance is likely to be. Also, the higher his position in the family, the higher, or more positive, his self-esteem is likely to be. These are, however, general conclusions. The research has shown also many exceptions and something of the complexity of the issues that would seem to underly them. These issues are of importance in themselves and some consideration must be given to them before attention is directed to the question of a possible causal relationship between the two main general conclusions.

The research has revealed three particular underlying issues which can be summarised as follows:-

(a) It seems clear that the <u>size of a child's family</u> is important in this context.

(b) Also important, it would seem, is the <u>composition of the family</u> in terms of the position, in relation to each other, of boys and girls.

(c) It would appear to be difficult to refer in any specific way to intermediate children. In a family of three there is, of course, only one intermediate child. In larger families where there are several it would seem to be necessary to distinguish between them in this context. Certainly a distinction should be made between early-born and late-born intermediate children.

These issues are not to be seen as in any way contradicting the general conclusions but rather as amplifying and possibly helping to explain them. The following attempt to explain them should be seen in this light. They will be considered in turn, although a clear distinction between is difficult.

a) The Size of Family

In both stages of the research it has been shown that a child's self-esteem and his performance at school are related to the size of his family. In general, children from the larger families have the lower levels of self-esteem. They also tend to have the poorer performance overall. As performance and self-esteem tend to decrease with position in the family, the potential disadvantage for late-born children in large families is obviously greater.

Certainly so far as the development of self-esteem is concerned, these results are perhaps difficult to explain. It is reasonable to assume that the number of children in a family will affect the amount of attention that the parents are able to give to any one of them. The size of the family will affect what might be termed the nature and quality of the interaction between parents and children and between siblings. It is not unreasonable to argue that this will, in turn, affect the children's developing self-esteem. Presumably a child's feeling of worth will be encouraged under conditions in which he or she can receive a significant amount of attention from key adults, usually the parents, and whose idiosyncraces of behaviour, interest, aptitude and ability can receive adequate attention and encouragement. All things being equal, this is more likely to be the case in a small family where a child will be encouraged to see himself as a distinctive individual of worth. This might also help to explain not only the generally lower levels of self-esteem in larger families but

also the tendency for self-esteem to decrease with ordinal position within the family. From the point of view of the eldest child of such a family, much will depend on his age when the second and subsequent children are born, but typically he is likely to have enjoyed his parent's undivided attention for perhaps two years. The birth of the second child may result in the eldest receiving less attention, but he is the eldest child and will never be removed from that position. Indeed, the responsibility that is likely to be bestowed upon the eldest child and the shared participation that he undertakes in helping to bring up younger siblings may well serve to raise his self-esteem.

Unlike the eldest in a family, younger children in turn occupy positions which will change as another child is born. Each is for a time the youngest and then becomes an intermediate child when there arrives a baby who becomes the focus of attention. Apart from the effects of this in itself, and the decrease in attention that he receives, it is also possible that he will be less likely to enjoy the responsibility accorded to the older members of the family at his age because of the continued presence of the latter.

A decrease in performance with increase in size of family is less easy to explain. One possibility is that it, too, is a direct result of decreased attention given to individual children with increase in the family size. In this context it is relevant to note the significance in the aspect of performance concerned. The research has provided some evidence that the decrease in performance with increase in family size is most marked in respect of language performance. This is not unexpected if development of language is related to factors such as the opportunity for conversation with adults. All things being equal, an eldest child is more likely to enjoy the opportunity for conversation with his parents. The arrival of a second child might increase this opportunity; not only might it provide a topic for conversation between parents and eldest child but the arrival of the baby might encourage the parents to regard the eldest child as more 'grown up' and encourage the use of more adult language.

The other possible explanation of a decrease in performance with increase in family size is that self-esteem plays a crucial part in

the way in which a child performs. Siblings from larger families are likely to be lower in self-esteem and thus their performance will be influenced.

b) The Composition of the Family

This investigation has shown that a child's self-esteem and academic performance are to some degree related to birth order, family configuration and gender. A decrease in ordinal position is associated with a decline in self-esteem and academic performance. Low status in terms of family configuration is also indicative of a decline in self-esteem and academic performance. Also to a lesser extent a subject's gender has some bearing upon the results of this survey - as demonstrated in respect of girls's performance in language.

In addition to these sibling structure variables which impinge upon the composition of the family, are two more - gender of other sibs and age-gap interval - which complete the picture appertaining to family constellation. Although no account was taken of these two specific variables the impact that these might have upon a subject's behaviour and performance is recognised.

With regard to sex differences within families, and the way in which siblings relate to each other, a consensus of opinion is lacking as to the way in which a child is affected. For example it has been argued that a second-born boy with an older brother is likely to develop very masculine interests, whilst girls with older sisters are likely to be more feminine in their interests - this process being termed 'identification'. On the other hand some studies which have highlighted 'de-identification' have shown that for instance a boy with two older sisters will tend to show less interest in feminine games and will interact less with girls, in contrast to boys with brothers.

The two simple examples above show how the composition of a relatively small family is likely to influence a child's self-esteem and learning. This becomes much more complex when one considers how and with whom relationships may form within a large family, and will account for possibly substantial differences in performance between same sexed siblings.

The question of the age gap interval between siblings is also likely

to influence the way in which they react and respond towards each other as part of their learning process. It is possible that a period of two years separating one sib from another results in them indulging in play of close matching interest which is conducive towards their development. On the other hand such an interval might promote rivalry, aggression, hostility and teasing between sibs, culminating in negative feelings of self-worth for one in particular. A wider age span is likely to be more favourable, as this might serve to foster the sibs' mutual independence, reduce sibling rivalry, and increase the possibility of a child being treated as an individual. Under these circumstances it is likely that a sibling will attain a high self-esteem and perform positively.

It is, therefore, evident that the composition of the family and ones specific position therein will have a substantial affect upon a sibling's self-esteem and performance.

c) The Status of Intermediate Siblings Identified as being Early-Born or Late-Born

Although this study points to intermediate children generally being low in self-esteem and performing poorly academically, the decision to sub-divide these middle-born children into two groupings, revealed important findings according to their status. In particular late-born intermediates proved to be very low in self-esteem and academically performed weakly.

As an intermediate child, ones ordinal position and size of family determines ones status. An intermediate sibling of low ordinal position from a large size of family will have very little status. In terms of the sibling hierarchy he will be over-ruled by early-born intermediates, youngests and eldests and consequently, compared to all of these siblings, he is likely to be ignored. Such an affect is likely to result in late-born intermediate siblings having low self-esteem resulting in a poor performance level.

The necessity, therefore, exists when conducting research of this nature to make at the very least a clear distinction between early-born and late-born intermediate siblings, or better still compare them

on an equal basis in terms of familial configuration, involving children of the same gender, the same ordinal position and the same family size.

In summary of the underlying issues relating postion in family to academic performance and self-esteem the following characteristics are arguably listed in order of priority:-

LANGUAGE PERFORMANCE

	Advantageous Position		Disadvantageous Position
i)	eldest child	-	youngest or intermediate child
ii)	high ordinal position	-	low ordinal position
iii)	high status re family configuration	-	low status re family configuration
iv)	small size of family	-	large size of family
v)	female	-	male
vi)	early-born intermediate sibling	-	late-born intermediate sibling

MATHEMATICAL PERFORMANCE

	Advantageous Position		Disadvantageous Position
i)	eldest child	-	youngest child
ii)	high ordinal position	-	low ordinal position
iii)	high status re family configuration	-	low status re family configuration
iv)	intermediate child	-	youngest child
v)	female	-	male
vi)	early-born intermediate sibling	-	late-born intermediate sibling
vii)	small size of family	-	large size of family

SELF-ESTEEM

	Advantageous Position		Disadvantageous Position
i)	eldest child	-	intermediate child
ii)	youngest child	-	intermediate child
iii)	high ordinal position	-	low ordinal position
iv)	high status re family configuration	-	low status re family configuration

v)	small size of family	-	large size of family
vi	female	-	male
vii)	early-born intermediate sibling	-	late-born intermediate sibling

It has been shown that a child's performance at school might be related to his position in his family. It has also been shown that his self-esteem might also be related to his position in his family. To what extent, then, is it possible to argue that his performance at school in relation to his position in his family is due largely to his self-esteem. The evidence so far presented might suggest this as a reasonable possibility, but nothing more than this. In addition it is neccessary to consider how the two might be related in practice. Evidence does exist which shows that childrens' early lives are of considerable importance in determining much of what happens to them later in life, including performance and behaviour at school.

In respect of the home environment and children's learning, several authorities have demonstrated that there is a substantial relationship between the two. Bloom (1964) concluded that the pre-school years are the most important for intellectual stimulation where a child's basic intellectual development is completed before compulsory entry to school. Bradley and Caldwell (1977) found that when they measured the home environment of 6 month old infants they were able to correctly predict 71% of the children with I.Q. scores of 70 or below at 3 years of age. Wilton and Barbour (1978) found that Mothers of high risk children in the 30 - 46 month age range did less didactic teaching and showed less encouragement in their offspring's activities compared to the mothers within heterogeneous samples. Additionally it was recorded that high risk children actually spent less time interacting with their mothers and participated less in activities deemed highly intellectual. These findings in relation to home environment may also be interpreted as predictive of academic performance.

Possibly one of the most essential ingredients to a child's development is the acquisition of language skills. The manner in which he or she communicates, receives communication and is communicated to, dictates his or her mental, moral, social and psychological growth.

This, to some extent, is supported by Butler and Golding (1986) who state that, "Speech defects present in the 7 year old child have been shown not only to be closely correlated with poor educational attainment at that time, they also have a poor prognosis for later attainment..... The child who cannot communicate easily is liable to suffer from symptoms of frustration which may result in severe behaviour problems."

Naturally, linguistic studies have tended to concentrate upon the verbal interaction of mother and child, for it is usually she as the first teacher who is responsible for his or her initial development. Such investigations, without describing them in any detail, have revealed that maternal verbal responsivity to an infant has a significant effect upon future cognitive performance.

Thus far the richness of the home environment has been stressed as being of importance to a child's learning. Additionally, identified as an integral part of that richness has been the subject of language development, and the verbal interaction between mother and child. A further component to the child-development mechanism is that of self-esteem, which is originally affected by parental treatment and which affects intellectual performance. This is supported by Turner (1980) who argues that, "the infant is capable of both seeking and avoiding stimulation. He has the innate capacity to be alerted by new stimuli, which in turn motivates him to explore and to act. ..... Since the infant's mother and other care giving adults are his main source of stimulation ..... their sensitivity to his needs and capabilities would seem to be instrumental in producing either an inquiring, acting, infant or one who learns to avoid new stimuli ..... Within a few months the possibility, but not the certainty, of future success or failure in learning will have begun to develop through adult-infant interaction ..... It is, therefore, possible that a child's cognitive development is affected by the way he has been taught to feel about his own capabilities."

One, or a combination of the reasons stated below may account for the correlations between the variables of home environment, academic performance and self-esteem. It is possible that a stimulating home environment produces intelligent, self-respecting children. On the

other hand it can be argued that children within a rich home environment learn intellectual skills and acquire higher self-esteems that enable them to benefit, more so than deprived children, from instruction in school. Finally it is possible that parents of high self-esteem raise that of their children and teach them to value the types of learning activities that a school provides.

The environmental issue which is seen to influence a child's development must then have different repercussions upon one sibling compared to another, thus affecting both self-esteem and academic performance. The writer maintains that the highest source of potential influence upon a sibling is his parents, followed by other siblings and to a lesser degree significant others which include close relatives and later in life teachers. Indeed, the way in which a parent behaves with one child affects the way in which the children behave towards each other. In accordance with this, much of the future discussion concentrates upon the parental treatment of siblings which is regulated by status, birth order, family configuration, family size, age spacing and gender.

It is well *documented* that eldest children enter a world in which parental care and attention is undivided, and in which the family's financial position is likely to give greater benefit to the only child. The length of time that this situation exists, serves to foster his or her development, more so than any other period. Although an addition to the family, by way of a younger sibling may well be the root cause of sibling rivalry through his displacement, his status is in many ways raised. Parents intentionally or unintentionally ascribe him to a new role the features of which include added responsibility, greater independence and increased leadership, and he becomes actively involved as a caretaker and disciplinarian to younger sibs. In addition to these new parental expectations, hopes still remain high for him to do well academically, which is seen by parents as a successful measure of their child-rearing practice. The eldest child duly responds to these environmental influences, his self-esteem is raised and he is motivated to achieve the goals set ahead of him, which he frequently does in comparison to other siblings.

The youngest child enters a completely different environment to that

of the oldest sibling and immediately meets with contrasting experiences. Parents who were once anxious to respond to the attention seeking behaviour of a first baby, do so less readily to a second, and future babies. The novelty and pride associated with the birth of a first child, unlike that of subsequent others, could be a causal factor, or the confidence acquired through dealing with a first child may cause parents to become more relaxed with and less reactionary towards the next child. If, however, one rejects these suggestions relating to a decrease in parent-child interaction, one must accept that such is the case on economical grounds, which are in fact twofold. Firstly neither child is ever likely to command the sole eternal attention of parents, and secondly the mental physical and financial pressures brought upon parents by additional children is liable to be a constraint in providing the resources that were once available to the single child.

Additionally the younger child will learn not solely from his parents, as did the older child, but in fact from the older child himself. Thus through imitation of and through modelling himself upon the oldest child, he will become a 'passive learner'. The dependency upon an elder sib may become such that he actually communicates through him. Moreover a child demanding less from his parents could well be misinterpreted by them, resulting in him being reared or stimulated at a lower level. Against all of this, however, remains at least one distinctive feature that favours the youngest child. Throughout the period of time that he is the youngest he might tend to be always regarded as the 'baby' of the family. The doting that is spent upon him as a baby may well in following years result in favourable differential treatment by parents. This special affection may be explained to older sibs in terms of compensatory measures taken for the youngest child's age, status, maturity or size to reduce any jealous reactions. Thus to some degree the parental interest that is afforded to him is likely to raise his self-esteem though not to the heights attained by the oldest child.

A change in the dynamics of family life is apparent with the addition of a third-born child. The comparative affect upon the second-born sibling is likely to be devastating. Upon reaching the age when important tasks were delegated to the eldest sibling by parents, he or

she receives no such responsibility. The likelihood is that the eldest child will continue to undertake various duties in assisting with the rearing of two children. Secondly, and perhaps of greater impact upon the second-born child's self-esteem, is the dramatic change in his status and position. He is no longer the youngest child and no longer is he or she likely to be given the privileges that are accorded to the position. This is attenuated by the fact that a newcomer is to be the focus of parental attention and will be the recipient of certain preferential treatment. Under these circumstances, it is understandable that within a small family an intermediate child's self-esteem will be adversely affected. The implications of this for middle-borns within a large family could be such that it causes them to lose their identity completely.

A decline in the home environmental conditions, generated by an ever-increasing size of family, is commented upon by Butler and Golding (1986) who also cite other authorities:-

"The larger the family, the greater are the difficulties that may result. The mechanism by which this may happen has been described vividly by Sula Wolf (1961):

'When several pre-school children are being brought up together, the demands for care, protection and kindly control may be more than one mother can fulfil. Unless actively helped in their relationship with each other, a group of under-5's inevitably become belligerent and noisy, stimulating each other to ever more aggressive and distructive conduct (Patterson, Littmann and Bricker, 1967). Their mothers frequently develop depressive illnesses, especially when they are socially isolated and poor (Brown, Bhrolchanin and Harris, 1975). When the mothers are depressed they become irritable ..... this increases the children's anxiety level and their impulsive aggression.'
..... In large families similar phenomena are at work - the children spend most of their time interacting with one another and relatively little with their parents."

Having painted a rather bleak picture with regard to intermediate siblings, it must be stated that two other variables relating to family constellation, namely age-spacing and gender, could put a

different complexion on the matter. Indeed these two variables will have some effect upon all siblings depending upon their actual position in relation to others within the family.

With reference to age-spacing it would seem that the greater the interval in years between siblings the more likelihood there would be for parents to treat each one as an individual. It is also probable that the level of sibling interaction would be lower, as they would no doubt be provided with activities appropriate to their chronological ages. An age gap wider than approximately 3 years would possibly minimise the degree of rivalry between siblings, for as infants they would be separated by the compulsion for the eldest child to attend school. Although no supportive evidence is offered, it is felt that a period of separation of this nature would provide an opportunity for just a mother and one child to interact without interference from other siblings. It is envisaged that under these circumstances a child will make greater progress than one who is near to the age of another sibling.

With reference to gender, one must accept that siblings of the opposite sex are likely to be brought up differently as a consequence of their parents' stereo-typical behaviour and attitudes. However, such conduct and beliefs might actually benefit a specific child in the family if the remaining siblings are not of the same gender. It can be easily recognized that in this instance, a child who is the 'odd-one-out' is liable to be treated differentially by his or her parents. Ironically, sexist treatment depending upon ones position in the family, might be a sibling's greatest asset to learning.

In view of the findings of this investigation and with regard to the comments that have been made, it was decided to hold several informal discussions with a number of mothers. This was planned to assimilate their child rearing practices with those projected in this study. The number of mothers who participated was 7, 5 of whom had 2 children under 6 years and 2 of whom had 3 children under 8 years. Each interview was held on a separate basis with the mothers, at which point the details and results of this work were stated. The mothers were then asked to inform the writer of any differential treatment afforded to their children by themselves. Although it was realised that such a

small sample was of little statistical significance, it was felt that their descriptions and reports might substantiate the views expressed in this chapter.

Initially, all the mothers acknowledged the fact that the first-born child received greater attention in the first two years of life than did subsequent children. Their reasons were mainly twofold in that a) they themselves were motivated to stimulate the child towards rapid development and b) they had both the time and the energy to fulfil these tasks. In contrast to this, and with regard to a second child, it was pointed out that his or her rapid development in relation to peers was no longer regarded as a measure of successful parentage. Additionally a high level of parental stimulation was deemed unnecessary for the child in question, as he was able to interact with an older sibling. Fourthly, the increased workload of being a mother to more than one child restricted the amount of interaction that took place between a parent and each sibling.

Differential treatment of their respective children was also recognised with regard to other aspects of home life. It was remarked upon that the older child was urged to become more independent at an earlier age than the younger child. For example the need for a push-chair by the younger child, resulted in the older child forgoing his mode of transport for his sibling. Thus walking was enforced upon the older child at a relatively early age, when at the same age the younger child still remained in the push-chair. Similarly acts of responsibility were bestowed upon the eldest child when the mother required items to be delivered or articles to be fetched.

Three further points were made by the mothers with reference to their children's upbringing. It was stated that where attempts at direct teaching activities had been possible with one single child at a particular age, similar activities with the younger child on attaining that same age proved less successful. This was as a result of an older child's eagerness to interject and for the most part to unintentionally interfere during the tutoring of the younger child. Also where familial interaction took place in the form of games and play activities, the maturational level was set at that of the older child. More often than not the younger child lost interest and withdrew owing

to his inability to cope, leaving parents and older child to enjoy the games. Such frustration and failure could well affect ones desire to participate in the above activities upon reaching the appropriate age for which they are intended.

Finally, the feelings of discontent expressed by later-born siblings in relation to inheriting the originally new possessions and former belongings of older brothers or sisters was registered by the mothers as an indication of differential treatment. It is hoped that the inclusion of these points raised by the small group of mothers serves to support the writer's view that parents, above all others influence their children's self-esteem and capacity to learn, particularly when treated differentially.

Although the role played by parents in fostering their children's development has been emphasised, that played by significant others can be influential. Significant others are identified as siblings and teachers. The relationship between siblings, as already mentioned, is likely to arouse some personal feelings, as is the manner in which they react and respond towards each other. However, it is felt that the way in which siblings do behave with each other is largely manufactured by parental treatment, therefore this subject will not be dwelt upon.

Other persons who are liable to have some impact upon siblings are their teachers within schools. The educational standards that they set must be achievable to some degree lest those children who have met with failure in the home environment continue on a downward spiral. The tendency exists for first-born children who are able and high in self-esteem to enter a school environment in which merit is mainly given for academic success. Naturally the high attainment will serve to raise their self-esteem and a cyclical process is likely to ensue. Teachers must, therefore, recognise the low-esteem that later-born siblings are likely to have. They should aim to raise their self-esteem through appropriate activities as a pre-requisite towards academic development, and teachers should place less emphasis on rewarding children for their academic attainment.

A child's school experience then of new activities in which failure

has not yet been encountered is vital towards raising his self-esteem and desire to learn. It is possibly for this reason that in this study, mathematical performance was seen to be higher than language performance. The argument is such that the pre-school years are associated with acquiring language skills as a means of communication. The level at which a child operates is of course dependent upon parental interaction, thus on entering school each child's level of language is bound to vary. The different stages already reached by children will to some extent determine future language performance. Contrary to this and with regard to mathematics, it would seem to be the case that very little pre-school work of this nature is undertaken. Therefore the majority of children on first entry to school have had almost the same limited mathematical education. It would appear then that all children take off from more or less the same mathematical platform, prior to which no failure has been encountered. This factor may well account for the difference in language and mathematical performance of certain siblings and in particular intermediate siblings from a disadvantaged home environment.

This chapter has attempted to discuss and account for the findings of this investigation. It is felt that the possibility of a causal relationship between position in family, self-esteem and academic performance does exist. It is suggested that as ordinal position decreases and family size increases, ones status is lowered. A sibling of low status is likely to grow up within a declining home environment which promotes his or her learning to a lesser degree compared with older sibs. The early experience of failure by siblings of low status results in them having low self-esteem which affects the way in which they behave and perform initially at home and in future years at school. Perhaps the only way to verify this theory would be for the undertaking of further research into families as units, taking note of how they develop, particularly in relation to children's self-esteem and learning.

The final comment, however, upon children's self-esteem and performance is aptly expressed by Johanna Turner (1980)

> "Up to the age of approximately five years the child will learn, but such learning is unintentional or incidental. During his formal education there will be an intentional attempt to teach him certain skills thought necessary for adult life. He will, however, continue to learn incidentally by observation and modelling. The manner in

which a child copes with intentional attempts to teach him by parents, teachers and others is influenced by his self-esteem, his coping strategies and his understanding of the learning situation. Where one child will expect success another will merely be motivated to defend himself against failure, and a third will withdraw from a situation which he has come to see as totally confusing."

CONCLUDING REMARKS

This study has attempted to investigate the extent to which a sibling's status, birth order, position in terms of familial configuration and family-size affects his or her self-esteem. It has also attempted to investigate whether the aforementioned variables have a bearing upon the way in which a child performs in school. Additionally, the research has considered whether self-esteem and academic performance are related. It has been deduced that there are grounds for concluding that a causal relationship exists between position in family, self-esteem and academic performance.

In view of this one must consider what the implications are for a primary school, such as the one at the centre of this research, within a socially deprived area where large families are common and where scholastically there is much underachievement. It seems clear that much of this underachievement is apparent in the larger families and mostly concerns those children low in birth order. Additionally underachievement is apparent within some smaller families and mostly concerns those siblings identified as being low in status. The familial and environmental situation is such that a child's low self-esteem facilitates underachievement and poor academic performance.

In the light of this the school is implicated and must play its part in helping to remedy the situation in a number of ways. Firstly the school should attempt to avoid those aspects of organisation, (indicated by research workers such as Burns), which tend to compound the problem of low self-esteem and poor academic performance. For example the 'streaming' or 'setting' of pupils has been shown to have an adverse affect upon those children of low ability. It is likely that low ability groups will be predominantly composed of children whose position in the family is low, and whose self-esteem is low. Such an environment will not only fail to raise their self-esteem but is more likely to induce further negative feelings of self-worth resulting in limited academic progress.

Secondly the important role that can be played by class teachers in attempting to raise the self-esteem of all pupils should be emphasised. The way in which they communicate, relate and respond to children will have some affect upon their self-esteem. It is imperative that teachers set their pupils goals which are achievable, and tasks that,

once completed by children, are commented upon in a positive manner. Additionally, the allocation of monitorial duties by teachers to children should ensure that they are done so on an equal basis as opposed to selecting only "academic" children for their undertaking. By offering such opportunities to all pupils, and particularly those of low self-esteem, it seems probable that these will in fact instil positive feelings of self-worth, thus enhancing their performance.

Lastly in terms of the classroom environment or indeed the school as a whole, is the possible existence within of a 'rewards scheme' that gives credit to a pupil for the way in which he behaves and performs as an individual and team member. One such possibility could be a 'house-points' system that recognises the achievements of all children in terms of performance and behaviour. In initiating this or similar schemes an attempt should be made to ensure that it operates to benefit those children low in self-esteem and low in ability as opposed to acknowledging, in the main, very able pupils of high self-esteem. Additionally its purpose should not be to solely reward children for setting high academic standards, it should be possible to gain merit for achievement and effort relating to a number of wide-ranging skills associated with educational performance.

The final comment upon the findings of this research, and the implications that they have for schools, relates to the nature of performance upon which children are measured and the methods of testing that are used. The study has shown that in particular the levels in performance vary between language (spelling and reading) and mathematics. The sample means in spelling (94.9) and reading (94.5) were below the standard population mean (100.0), whilst in contrast to this the sample mean in mathematics (100.7) was slightly above the standard population mean (100.0).

This to some extent outlines the care that a school should take when selecting tests to assess children's academic performance. A school that relies solely upon tests of language to measure academic performance is failing to see the complete picture in terms of their pupils' development. The situation becomes more serious where many children from deprived homes, who are likely to be lacking in linguistic skills, are assessed academic-wise purely in relation to

language performance.

Care should also be taken in selecting tests, which are not primarily concerned with language performance. They should have a simple language/reading content and/or they should be presented to the candidate (possibly verbally) in such a way that does not duly handicap him as a consequence of the linguistic element appearing within the test. Thus, schools should be aware of these limitations when assessing the academic performance of pupils.

It is hoped that these remarks have given some practical insight into the ways in which schools can attempt to raise pupils' self-esteem (particularly those children of low ordinal position and low ability) and it is recommended that schools should assess pupils' academic performance using different test measures and test instruments.

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A P P E N D I C E S

APPENDIX 'A'

Schonell Graded Word Spelling Test A.

net	can	fun	top	rag
sat	hit	lid	cap	had
let	doll	bell	yes	then
may	tree	by	ill	egg
land	how	your	cold	talk
flower	son	seem	four	loud
ground	lowest	brain	write	amount
noise	remain	hoped	worry	dancing
damage	else	through	entered	cough
fitted	spare	daughter	edge	search
concert	domestic	topic	method	freeze
avoid	duties	recent	type	instance
liquid	assist	readily	guess	attendance
description	welfare	various	genuine	interfere
accordance	mechanical	anxious	signature	allotment
approval	accomplished	remittance	financial	capacity
surplus	exceptionally	successful	preliminary	resource
prologue	colonel	coarse	referring	courteous
exhibition	affectionately	attorney	pinnacle	toboggan
definite	guarantee	anniversary	irresistible	hydraulic

APPENDIX 'B'

Schonell Conversion Table of Spelling Ages to Spelling Quotients.

For converting tenths of a year into months

For converting reading and spelling ages derived from test S1 in terms of years and tenths of a year into reading ages in terms of years and months.

.1 of a year =	1 month
.2 of a year =	2 months
.3 of a year =	4 months
.4 of a year =	5 months
.5 of a year =	6 months
.6 of a year =	7 months
.7 of a year =	8 months
.8 of a year =	10 months
.9 of a year =	11 months

e.g. Reading Age 8.4 = 8 years 5 months
Spelling Age 9.8 = 9 years 10 months

SCORING

Each testee's result on the test can be scored in the form of a spelling age from the following formula:-

$$\text{Spelling age} = \frac{\text{number of words correctly spelled}}{10} + 5 \text{ years}$$

thus 39 words right = S.A. of $\frac{39}{10} + 5 = 8.9$ years.

If the test is commenced at a group of words beyond the initial one, care should be taken to add to the total score the number of words in prior groups which were not written, as it is then assumed that the testee(s) could spell the words omitted from the earlier and easier group(s).

It should also be remembered that the results of these tests (Tests S1 and S2) in terms of spelling ages are in years and tenths of a year and need to be converted into years and months for record purposes.

SPELLING QUOTIENT

Should an estimate of the pupil's spelling attainments compared with his chronological age be required, this can be obtained by calculating the spelling quotient.

$$\text{Spelling quotient} = \frac{\text{Spelling age}}{\text{chronological age}} \times 100$$

For example, Tom S., age $9\frac{7}{12}$ spells 43 words correctly, thus, his spelling age (S.A.) = 9.3 years or 9 years 4 months.

$$\text{Spelling quotient } \left(\frac{\text{S.A.}}{\text{C.A.}} \times 100\right) = \frac{9\frac{4}{12}}{9\frac{7}{12}} \times 100 = 97.$$

APPENDIX 'C'

SELF ESTEEM TEST 1.

LAWSEQ PUPIL QUESTIONNAIRE

	YES	NO	DONT KNOW
1. Do you think that your parents usually like to hear about your ideas?			
2. Do you often feel lonely at school?			
3. Do other children often break friends or fall out with you?			
4. Do you like team games?			
5. Do you think that other children often say nasty things about you?			
6. When you have to say things in front of teachers, do you usually feel shy?			
7. Do you like writing stories or doing other creative writing?			
8. Do you often feel sad because you have nobody to play with at school?			
9. Are you good at mathematics?			
10. Are there lots of things about yourself you would like to change?			
11. When you have to say things in front of other children do you usually feel foolish?			
12. Do you find it difficult to do things like woodwork or knitting?			
13. When you want to tell a teacher something, do you usually feel foolish?			
14. Do you often have to find new friends because your old friends are playing with somebody else?			
15. Do you usually feel foolish when you talk to your parents?			
16. Do other people often think that you tell lies?			

SCORING KEY:

Questions 4,7,9,12 are distractors.
Score + 2 for YES answer to Q.1.
Score + 2 for NO answers to remaining scored questions
Score + 1 for DONT KNOW answers to scored questions
Score 0 for all other possibilities

Maximum possible score in the direction of high self-esteem + 24

APPENDIX 'D'

SELF ESTEEM TEST 2

DAVIDSON AND GREENBERG SELF-APPRAISAL SCALE.

Directions: The words on this page tell different ways children are. Read the words next to each number. Put a cross (X) in one box on each line to show whether you think you are that way MOST OF THE TIME or ABOUT HALF THE TIME or HARDLY EVER.

I THINK I AM:

	MOST OF THE TIME	ABOUT HALF THE TIME	HARDLY EVER
1. neat	3*	2	1
2. a big help at home	3	2	1
3. smart in school	3	2	1
4. shy	1	2	3
5. a pest	1	2	3
6. very good in art	3	2	1
7. scared to take chances	1	2	3
8. full of fun	3	2	1
9. a hard worker	3	2	1
10. polite	3	2	1
11. trying my best	3	2	1
12. nice-looking	3	2	1
13. lazy	1	2	3
14. full of questions about new things	3	2	1
15. going to do well	3	2	1
16. sad	1	2	3
17. good in sports	3	2	1
18. careless	1	2	3
19. honest	3	2	1
20. nervous	1	2	3
21. good at making things	3	2	1
22. bad	1	2	3
23. liked by other children	3	2	1
24. as lucky as others	3	2	1

* Numbers in boxes are the score values

APPENDIX 'E'

't' - Test Values in respect of Girls' and Boys' Academic Performance and Self-Esteem in Stage 2

Spelling	't' = 1.85 (not significant)
Reading	't' = 2.10 (significant at the 5% level)
Mathematics	't' = 0.55 (not significant)
Self-Esteem	't' = 3.68 (highly significant at the 0.1% level)

APPENDIX 'F'

't' - Test Values in respect of Small Families and Large Families with regard to Academic Performance and Self-Esteem in Stage 2

Spelling	't' = 1.28 (not significant)
Reading	't' = 0.49 (not significant)
Mathematics	't' = 0.23 (not significant)
Self-Esteem	't' = 3.01 (significant at the 1% level)

APPENDIX 'G'

Lawseq

The above self-esteem questionnaire was developed by D. Lawrence, formerly Chief Psychologist to Somerset County Council Education Department, and the final version appeared as a result of each item being analysed by the University of Bristol Department of Child Care. A correlation coefficient of 0·394 was found to exist between Lawseq and the Burt Word Recognition Test (reading attainment) which was substantiated by Barker (1979). The Lawseq test has been adopted by Professor Neville Butler (National Child Health and Education Study) for his U.K. survey of 15,000 children born during the week commencing 5th - 11th April 1970.

Davidson and Greenberg Self Appraisal Scale.

The above test instrument was developed by the author, for work with socially deprived pupils. It is based upon a previous version which was administered to 105 children who 4 - 6 weeks later were re-assessed upon the same test. A correlation of +0.85 was reported in terms of its reliability. The Davidson and Greenberg Self Appraisal Scale has since been used by Cohen (1974) of the University of Bradford for his work with 244 Sheffield Secondary School pupils, where a correlation coefficient of +0.27 was found to exist between low self-esteem and scholastic alienation.