THE UNIVERSITY OF HULL

CHILDREN'S SELF-ESTEEM, TEACHERS' EVALUATION, AND TEACHER-PUPIL INTERACTIONS IN ESN(M) CLASSROOMS: AN OBSERVATIONAL STUDY

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"Children's Self-Esteem, Teachers' Evaluation, and Teacher-Pupil Interactions in ESN(M) Classrooms: An Observational Study"

The main purposes of this study were to examine the effect of children's self-esteem on their classroom interactions with teachers, to study the effect of teachers' evaluation of students' self-esteem upon their contacts with students, and to find out whether or not children's self-esteem or teachers' evaluation of students' self-esteem may change over a period of time.

The study was mainly conducted in two stages. In the pilot study, instruments which could be ultilized in the main study were tried out to check their suitability for applying to the mentally-handicapped children. Also, an observational system was developed for recording teacher-pupil interactions in special classrooms. In the main study, the revised self-esteem inventory, the anxiety scale and the group reading test were administered to two hundred and fifty ten- to twelve-year-old ESN(M) children in six special schools within a county. Simultaneously, teachers of these children were asked to assess their students' self-esteem with the same self-esteem inventory and to complete a behaviour questionnaire for each child. Then, twenty-nine children and four teachers were selected from four classrooms in two special schools as the sample for more detailed observations from October 1981 to April 1982. Both re-measuring and re-assessing of these children's self-esteem were carried out in the middle and at the end of the study.

Six null hypotheses and seven research questions were formulated to investigate the self-esteem of mentally-handicapped

children and teacher-pupil interactions in special classrooms. Both parametric and nonparametric statistics were used for data analysis.

The results indicated that children with different levels of self-esteem did not differ significantly in the types and frequencies of their interactions with teachers. Similarly, teachers showed no difference in their total initiated contacts with different teacher-evaluated groups, except they gave more positive responses to the low teacher-evaluated group. Analysis of children's self-rating self-esteem scores and teacher-evaluated self-esteem scores in three testing sessions illustrated a significant negative change in children's self-esteem scores but failed to show a significant change in teacher-evaluated self-esteem scores. Further analysis revealed that no significant relationships existed between the frequencies of teachers' interactions and children's final self-rating self-esteem scores, between the frequencies of children's interactions and the final teacher-evaluated self-esteem scores, and between children's initial self-rating self-esteem scores and the frequencies of their classroom behaviour. The initial teacher-evaluated self-esteem scores, however, were positively related to their instructional contacts with students but negatively related to the frequencies of their positive responses to students' contacts.

In summary, this study failed to support the theoretical assumption that an individual's behaviour was directed by one's self-esteem. To a certain extent, it illustrated that teachers' evaluations of students' self-esteem did affect their interactions with students. It also confirmed the belief that once a student had been identified in a certain way teachers seldom changed their perception of a student. Finally, this study showed a negative change of children's self-esteem in special classrooms.

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I. INTRODUCTION

A. Statement of the Problem

For a long time, it has been agreed among self-theorists that self-concept is an important factor underlying individual behaviour (e.g., James, 1890; Maslow, 1970; Mead, 1934; Rogers, 1951; Snygg and Combs, 1949). Realising its importance in guiding and directing human's behaviour, there has been considerable research, both published and unpublished, into the relationship between self-concept and other variables such as academic achievement (Bridgman and Shipman, 1978; Hansford and Hattie, 1982; West, Fish, and Stevens, 1980), anxiety (Lundgren and Schwab, 1977; Many and Many, 1975; Millen, 1966), locus-of-control (Ames and Felker, 1979; Burback and Bridgeman, 1976; Gordon, 1977), and classroom behaviour (Morrison and Thomas, 1975; Reynolds, 1980; Yeger and Miezitis, 1980). Many findings of these studies, however, are inconsistent and, as a result, no firm conclusion can be drawn. In the review of the literature relating to self-concept construct, all reviewers convey the impressions that these deficiencies are due to the lack of agreement over definitions of the self-referent terms and the inadequate research designs and instrumentations (Burns, 1979, 1982; Scheirer and Kraut, 1979; Shavelon, Hubner, and Stanton, 1976; Thomas, 1980; Wylie, 1974, 1979). In order to have a more promising result of the self-concept study, a better research design and a suitable testing instrument are the important elements in future research in this area.

It is generally assumed among the authors in the mental retardation literature that the mentally-retarded children have

a more negative self-concept and low self-esteem than non-retarded individuals because they have experienced more frustration and failure (Balla and Zigler, 1979; Brown, 1980; Lawrence and Winschel, 1973; Robinson and Robinson, 1976). Research on the self-concept of mentally-retarded children, however, are mostly concentrated either on comparing their self-concept with those of the nonretarded peers (Collins and Burger, 1970; O'Such, Havertape, and Pierce, 1979; Porter, Collins, and McIver, 1965) or investigating the effect of labelling (Gordon, 1975; Guskin, 1978; MacMillan and Meyers, 1979) or mainstreaming (Gottlieb, 1981; Kaufman, Agard, and Semmel, 1982; Semmel, Gottlieb, and Robinson, 1979; Yauman, 1980) on their self-concept development. As with the self-concept work in nonretarded population, results of these studies are also contradictory and inconclusive. In addition to the methodological and instrumentation problems, the low intellectual functioning, poor perceptions of inner feelings, and a limited verbal ability of these handicapped children add more difficulties in the study of their self-concept (Balla and Ziger, 1979; Brown, 1980; Gibbons, 1981; Lawrence and Winschel, 1973; MacMillan and Semmel, 1977). Since there is not much research investigating the influence of self-esteem on the classroom behaviour of mentally-retarded children, it is necessary to explore this phenomenon so that we may have a broader knowledge about the self-concept of these children.

According to Cooley (1902) and Mead (1934), our concepts of self develop as a product of social interaction and feedback from "significant others". Although feelings about the self are well established early in life, yet they are modified by significant events and experiences. Among the significant people

believed to affect the child's self-concept are first, his parents and later, his teachers and peers. Jersild states, "for many young people school is second only to the home as an institution which determines the growing individual's concept of himself and his attitudes of self-acceptance or self-rejection" (1952, p. 90). It has been demonstrated in some studies that teachers' feedback in the form of verbal and non-verbal communication has an enormous influence on children's self-concept (Chadwick, 1967; Ensor, 1976; Palfrey, 1973; Staines, 1958). As feedback from a teacher is related to his or her expectation and as this expectation is formed by his or her general idea and information of a student (Braun, 1976; Brophy and Good, 1974; Cooper, Baron, and Lowe, 1975; Good, 1980; Guttmann and Bar-Tal, 1982; Rogers, 1982), it is useful to question whether or not teachers' stereotypes and impressions of mentally-handicapped children have some effect on their interactions with these children, which may, in turn, modify or reinforce the retarded children's developing self-concept.

In recent years, there is a heated debate in the field of personality psychology on the trait-situation issue for predicting and understanding human behaviour (Blass, 1977; Bowers, 1973; Ekehammar, 1974; Endler, 1975; Endler and Magnusson, 1976a; Mischel, 1973). The main argument is that whether the variability in human behaviour is a function of his underlying dispositions or a function of his surrounding stimulus situations. After years of assessing persons by the traditional trait theorists (Allport, 1937; Cattell, 1957; Guilford, 1959), some investigators turn to assess situation as well (Frederiksen, 1972; Mischel, 1968; Moos, 1973; Pervin, 1978), and person-situation interaction is now a major approach in personality

research (Endler, 1981, 1982; Endler and Magnusson, 1976b; Magnusson, 1981a, 1981b; Magnusson and Endler, 1977). Although research (Bowers, 1973; Endler and Edwards, 1978) has shown that the person-situation interaction is an important variance, it has not yet been demonstrated that this interaction, when applied to the self-concept construct, consists of replicable patterns from which meaningful predictions can be made. As the self-concept has been regarded as a mechanism for regulating, guiding, and unifying behaviour (Lecky, 1961; Rogers, 1961) and even as the motivational force for all human activity (Combs and Snygg, 1959; Hayakana, 1963; Snygg and Combs, 1949), it seems that the study of its relation to human behaviour supports the trait theorists' hypothesis that human behaviour is primarily determined by stable, latent dispositions. To date, however, there is no further empirical proof of this assumption in the special-classroom situation. Therefore, it is worthwhile for this investigator to undertake an initial exploration into this phenomenon in the field of special education.

B. Purposes of the Study

Owing to the above mentioned problems in the study of self-concept with both normal and retarded populations and the lack of research investigating the relationship between self-concept and classroom behaviour of the mentally-handicapped children, the main purpose of this study was to explore, in greater depth, the effect of self-concept on mentally-handicapped children's contacts with their teachers and the effect of teachers' evaluation upon their interactions with students in special-classroom settings. In addition to the main purpose, other objectives of this research were:

1. to determine which available self-esteem instrument is most suitable for assessing the self-esteem of preadolescent educationally-subnormal (ESN-M) children,
2. to develop an observational system for coding teacher-pupil interactions in special classrooms,
3. to find out whether or not mentally-handicapped boys differ from mentally-handicapped girls in responding to the self-esteem inventory,
4. to examine the relationship between teacher-evaluated self-esteem scores and children's scores on the reading test, the anxiety scale, and the behaviour questionnaire,
5. to investigate how the high self-esteem children score differently from the low self-esteem children on different tests measuring children's self-esteem, general anxiety, reading ability, and classroom behaviour,
6. to discover the differences in scores between the high teacher-evaluated children and the low teacher-evaluated children on the self-esteem inventory, the anxiety scale, the reading test, the behaviour questionnaire, and teachers' evaluation of children's self-esteem, and
7. to study the effect of teacher-pupil interactions on children's self-esteem and teachers' evaluation of children's self-esteem.

C. Theoretical Framework for the Study

Literature and research on self-concept seem to support the following inter-related assumptions which provide the theoretical framework for the present study.

1. An individual's behaviour is guided and directed by how he perceives himself, i.e., his self-concept or self-esteem

(Mead, 1934; Rogers, 1951; Snygg and Combs, 1949).

2. The self-concept develops as a result of interaction with "significant others" (Combs and Snygg, 1959; Cooley, 1902; Mead, 1934; Sullivan, 1947; Rogers, 1951).
3. The self-concept can be changed and modified through interactions with "significant others" (Bledsoe, 1967; Campbell, 1967; Kash and Borich, 1978; Purkey, 1970; Sullivan, 1947).
4. Teachers' interactions with a child in the classroom setting are mainly affected by how he or she perceives that child, i.e., his or her expectation or evaluation of a child (Brophy and Good, 1974; Brophy and Evertson, 1981; Good, 1980; Levine and Wang, 1983; Rogers, 1982).

D. Research Hypotheses

The hypotheses tested in this study are based on three assumptions: (1) human behaviour is directed and guided by one's self-concept, (2) self-concept develops through social interaction, and (3) teachers' expectations of a child will affect his or her interaction with that child. Since there are not many empirical studies on the effect of self-concept on mentally-handicapped children's classroom behaviour, for the purpose of testing, the following null hypotheses are formulated:

1. Children with both high self-rating and high teacher-rating self-esteem do not differ significantly from children with high self-rating but low teacher-rating self-esteem in their contacts with teachers.
2. Children with both low self-rating and low teacher-rating self-esteem do not differ significantly from children with low self-rating but high teacher-rating self-esteem in their contacts with teachers.

3. Teachers' contacts with children having both high teacher-rating and high self-rating self-esteem do not differ significantly from their contacts with children having high teacher-rating but low self-rating self-esteem.
4. Teachers' contacts with children having both low teacher-rating and low self-rating self-esteem do not differ significantly from their contacts with children having low teacher-rating but high self-rating self-esteem.
5. There is no significant change in the self-esteem of the children over a period of time.
6. There is no significant change in teachers' evaluation of children's self-esteem over a period of time.

E. Research Questions

In addition to the six null hypotheses, analyses of the data permit exploration of the following questions:

1. In what ways do mentally-handicapped boys differ from mentally-handicapped girls in responding to the self-esteem inventory?
2. Do children with high self-esteem differ from children with low self-esteem in their "on-task" and "off-task" classroom activities?
3. How do children with high self-esteem differ from children with low self-esteem in their contacts with teachers?
4. What are the differences between teachers' contacts with high teacher-evaluated children and their contacts with low teacher-evaluated children?
5. To what extent do children's reading ability, general anxiety, and classroom behaviour relate to teachers' evaluation of children's self-esteem?

6. In what ways do children with high self-esteem score differently from children with low self-esteem on the self-esteem inventory, the anxiety scale, the reading test, the behaviour questionnaire, and teachers' evaluation of children's self-esteem?
7. What are the differences in scores between high teacher-evaluated children and low teacher-evaluated children on the self-esteem inventory, the anxiety scale, the reading test, the behaviour questionnaire, and teachers' evaluation of children's self-esteem?

F. Definition of Terms

The following terms were used in the study as defined below:

1. Self-concept - Rogers (1951) defined the self-concept as an "organised configuration of perceptions of the self which are admissable to awareness" (p. 136). This is the type of definition which Wylie (1974) refers to as phenomenological. Self-concept as used in the present study is in accord with the phenomenological approach and is assumed to refer to a set of self attributes which are descriptive and evaluative,
2. Self-esteem - The term "self-esteem" in the present study is defined as a set of evaluative attitudes that a person applies to himself (Fontana, 1966). "It is the evaluative aspect of the self-concept" (Samuels, 1977, p. 33).
3. Teachers' evaluation - In this study, teachers' evaluation is referred to as his or her assessment of children's self-esteem using the Short Form of the Piers-Harris Children Self-Concept Scale. This evaluation reflects teachers' feelings and general awareness of his or her students' self-esteem in relation to school, home, and peer group.

4. Teacher-pupil interactions - Teacher-pupil interactions as used in the study refer to contacts between teachers and their students in the classroom setting. These contacts need not be verbal, but in most cases they are. Data of interaction were gathered on the specifically designed Interaction Record Sheet.

5. Educationally-subnormal children (mild grade) - These children are those within the IQ range from 45 or 50 to 70 or 75 as identified by the revised Wechsler Intelligence Scale for Children (WISC) or the Stanford-Binet Intelligence Test. Usually they are educated in a special school. In America, these children are categorised as educable mentally retarded (EMR).

II. REVIEW OF THE LITERATURE

To study the effect of self-concept on pupils' classroom interactions with their teachers and the effect of teachers' expectation on their contacts with students, it is necessary to draw ideas from the writings and research of several authorities. In order to gain an adequate perspective, it is important to examine various definitions of self-concept proposed by different theorists according to their points of view. In addition, it is essential to acquire an overview of the historical development of self-concept theories. An understanding of the formation of children's self-concept in schools may help us to interpret the results of studies using different samples of subjects. A review of research on self-concept of mentally-handicapped children will make us aware of the complexity and difficulty in conducting research with this population. Finally, studies investigating the relationship between self-concept and classroom behaviour and those examining the effect of teacher expectation on classroom interactions will offer new insights into the present study.

The review of the literature in this chapter is divided into the following sections:

1. Definitions of self-concept
2. Development of self-concept theories
3. Formation of children's self-concept in schools
4. Self-concept of mentally-retarded children
5. Self-concept and classroom behaviour
6. Teacher expectation and classroom interaction

A. Definitions of Self-Concept

Since W. James (1890) became interested in the construct of self and accorded this topic an important place in his psychological thinking, the term "self" and its related concepts have been defined in different ways by various theorists or psychologists for purposes of fitting in with their own arguments and investigations. As pointed out by Wylie (1966), however, people employing these terms "do not offer even literary or denotative definitions ..., but instead simply talk about the construct to which they wish to assign the specified label" (p. 729). As a result, "constructs such as self-concept and self-esteem are vaguely defined at the conceptual level and do not point to any clear operational definition" (Harter, 1982, p. 87). When we look at the historical development for the term "self", we will realise that it has many, often conflicting, definitions. Even in the psychological dictionary, Drever (1964) defines it in terms of personality or ego; whereas English and English (1958) produce nearly one thousand combinations of self in their comprehensive examination of psychological and psychoanalytical terms. In order to provide a better idea about "self-referent" terms, some of the past and present definitions are presented here.

As early as 1947, Murphy defined the self simply as "the individual as known to the individual" (p. 996). Rogers (1951), however, in his writings provided a more comprehensive definition of self-concept. He states,

> "the self-concept, or self-structure, may be thought of as an organised configuration of perception of the self which are admissable to awareness. It is composed of such elements as the perceptions of one's characteristics and abilities; the percepts and concepts of the self in relation to others and to the environment; the value qualities which are perceived

> as associated with experiences and objects; and goals and ideas which are perceived as having positive and negative valence" (pp. 136-137)

In this definition, Rogers presents his phenomenological idea of the self. Implicitly, he supports the idea that the self is developed through social interaction and that it is related to the social environment.

Realising that self may be the motive behind much of human behaviour, another phenomenologist Combs, in his personal communication to Hall and Lindzey (1957, p. 470), defined that "the self is composed of perceptions concerning the individual, and this organisation of perceptions in turn has vital and important effects on the behaviour of the individual."

Jersild (1952) put the definition of self in a less technical way when he wrote,

> "A person's self is the sum total of all he can call his. The self includes, among other things, a system of ideas, attitudes, values, and commitments. The self is a person's total subjective environment. It is the distinctive 'center of experience and significance.' The self constitutes a person's 'inner world' as distinguished from the 'outer world' consisting of all other people and things" (p. 9).

Just as simple as Jersild's definition, Perkins (1969), in his book, stated that "the self-concept is made up of the most highly differentiated perceptions, beliefs, feelings, attitudes, and values which the individual holds of or about himself" (p. 198). Similarly, Pietrofesa (1969) defined the self-concept as follows:

> "Self-concept, a composite of numerous set percepts, is an hypothetical construct, encompassing all of the values, attitudes, and beliefs towards one's self in relation to the environment" (p. 37).

Recently, Thomas (1980) in his review of the self in education explains the meaning of self-concept with the following statement: "the self-concept is the image or picture the person

has of himself, which has developed through childhood and adolescence under the formative influences of home, school, and social environment, and forms his behaviour" (p. 24). Sharing the same ideas, Shavelson and Bolus (1982) broadly define self-concept as "a person's perceptions of himself - or herself. These perceptions are formed through one's experience with and interpretations of one's environment and are influenced especially by reinforcements, evaluations by significant others, and one's attributions for one's own behaviour" (p. 3).

From the above quoted definitions of self-concept proposed by various theorists and authors, they reveal that the concept of self becomes more complex and complicated as it continues to evolve in psychological literature. At the early stage of its development, self-concept is defined as a person's attitudes and feelings about himself (self-as-object) and regarded as a group of psychological processes which influence behaviour and adjustment (self-as-process). Later, self-concept is viewed as the product of social interaction, with its several hierarchial and multifaceted qualities. Although self-concept has been recognised as an important construct in understanding human behaviour, yet findings of some studies in this area are inconsistent. In addition to the difficulty of determining an operational definition for the construct of self-concept (Bills, 1981; Wylie, 1974), numerous theories derived from different theorists, which will be reviewed in the next section, add more difficulties to conducting satisfactory research on self-concept.

B. Development of Self-Concept Theories

Theories about self-concept have ranged from romantic, holistic ideas expressed through the fine arts to highly analytical statements emerging from psychological research on specific aspects of personality. Theorists disagree about whether the environment or the individual is more influential in their formulation. At present,statements about the self still remain somewhat speculative, but an examination of different theories does offer some important information about how people perceive themselves.

Psychology as a formal field of study is still quite youthful. Therefore, to trace some of the earliest formal writings on the concept of self, contributions from other fields of study must be examined. In the early religious writings, they reveal the belief that man has some inner regulatory agent which influences his destiny. These writings speak of a soul or an inner being which has spiritual qualities and thus is a separate entity from the material body (Donceel, 1955). The philosophical writings of ancient Greece, however, discuss more appropriately to the concept of self. For instance, Plato in the Phaedo described the soul as the initiator of activity which was conscious, life-giving, and non-material. In the third century B.C., Aristotle conducted a more systematic and logical enquiry into the nature of the ego and he made a distinction between the physical and nonphysical aspects of the human body.

Aristotle's concept of soul continued to prevail for some two thousand years and it was further elaborated by the French philosopher Rene Descartes in the first half of the seventeenth century. In addition to discussing about the relationship between body and mind, in his Principles of Philosophy,

Descartes emphasised the centrality of the self in consciousness by saying that "I think, therefore I am." Descartes inferred that thinking was evidence of existence of the thinkers whom he referred to as the "I". His concept of "I" was one direct predecessor of the modern psychological concept of self (Gergen, 1971, p. 6).

Like Descartes, several other philosophers of this period examined the centrality of the inner "self" in systems of cognition and consciousness. In Western Europe, Spinoza and Leibnitz added their ideas about the mystery of the non-physical aspects of man (Purkey, 1970, p. 3). Meanwhile, the English philosophers such as Hobbes, Locke, and Hume, were also probing the nature of the self. Hobbes advanced a code of ethics based on self-interest; Locke conceived of man as "a thinking intelligent being, that has reason and reflection, and can consider self as itself." Hume concentrated on an examination of personal identity (Viney, 1969). To summarise the writing on the self in the seventeenth and eighteenth centuries, Purkey (1970) writes, "terms such as mind, soul, psyche, and self were often used interchangeably, with scant regard for an invariant vocabulary or scientific experimentation. For the most part, a general state of confusion in regard to the concept of self existed into this present century" (p. 3).

Until the end of the nineteenth century, psychology was emerging as a recognisable and separate discipline. The two major impetuses for this were the writings of Sigmund Freud and William James. Interestingly, both of them were concerned with formulating conceptions about the self and the ego, and their early conceptualisations laid the groundwork for several of the later self theories.

James, in his two-volume work The Principles of Psychology (1890), devoted an entire chapter to "The Consciousness of Self", which was the longest in the two volumes. In describing the self, James stated that "a man's self is the sum total of all that he can call his" (p. 291). Further, he propounded the three constituent parts of the empirical-self or "Me": the material Me, consisting of the individual's material possessions, including his body; the social Me, or the recognition which the person received from others; the spiritual Me, the states of consciousness (feelings and emotion) reflected on or perceived by the person himself. For James, the self was an entirely conscious phenomenon.

Unlike James, Freud was not formally concerned with self-image and self-identity. Rather, Freud gave much attention to the self under the rubic of ego development and functioning (Freud, 1923, 1933, 1938). He saw personality as made up of three major systems: the id, ego, and superego. Any human behaviour is nearly always the product of an interaction among these three systems. The ego, however, is the executive of the personality because it controls the gateway to action, selects the features of the environment to which it will response, and decides what instinct will be satisfied and in what manner. To sum up, the ego maintains a psychic balance between the demands of the person's moral inclinations (the superego) and the natural impulses (the id). This concept of ego was given increased attention by Anna Freud (1946), who built a respected place for it in therapy. Yet, as suggested by Monroe (1955), the Freudians and neo-Freudians generally hesitated to elevate the self to the status of a primary psychological unit or give it a central position in their theoretical formulations.

During the 1920's the positivistic spirit began to prevail and with its extreme emphasis on observable fact and thorough criticism of "armchair" theorising, the status of self theory began to wane (Wylie, 1974). The development of self-concept theory was under behaviourist attacks because self theory did not appear related to empirical facts, experimentation was lacking, and it did not conform to the behavioural model of scientific psychology. As Hilgard (1949) pointed out, the introspectionists could not handle the self, and "mentalistic" constructs such as self-concept were blasphemous to the behaviourists.

Although the self received scant attention from the behavioural-oriented psychologists from the 1920's through the 1940's (Wylie, 1961, 1968), yet a number of sociological and psychoanalytical theorists was still making significant contributions to the body of writings on self-concept.

After James, C.H. Cooley was one of the earliest social psychogists to explore the idea of self. He recognised that the social milieu from which a person comes contributed heavily to how a person views himself. Thus, he developed a theory of the self that was concerned primarily with how the self grows as a consequence of interpersonal interactions. From this he proposed the concept of "the looking-glass self" to describe how a person gains a view of himself. According to Cooley, "the kind of feeling one has is determined by the attitude toward this attributed to that other mind. A social self of this sort might be called the reflected or looking-glass self.

> Each to each a looking glass
>
> Reflects the other that doth pass" (Cooley, 1902, p. 152).

For Cooley, a self-idea had three principal elements: "the imagination of our appearance to the other person; the imagination of his judgement of that appearance; and some self-feeling" (p. 152). It is clear that Cooley viewed the process of an individual's self-appraisal to be greatly influenced by his perception and interpretation of the reaction of other persons to him.

G.H. Mead elaborated on James' social self in the development of Cooley's theory and produced a somewhat more sophisticated view of self development. Like James, Mead saw the essence of the self in the I-Me distinction; like Cooley, Mead saw the self as a social phenomenon. In the "I-Me" dichotomy, Mead's "I" is the impulsive tendency, the unorganised, undisciplined, undifferentiated activity of the individual. He asserted that every behaviour commences as an "I", but develops and ends as a "Me" because it comes under the influence of societal constraints. "I" provides the propulsion; "Me" provides direction.

According to Mead (1934), the self emerges through a social process of interaction and communication. The self is not in existence at birth, "but arises in the process of social experience ... through the individual's relations with the entire process and to individuals within the social construct" (p. 139). Mead's self is an object of awareness, rather than a system of processes. That is an individual comes to know himself and respond to himself as he sees others responding to him. Also, Mead's self is a socially-formed self which grows in social setting where there is social communication. He referred to the social group that gives individuals their unity of self and against which they evaluate themselves as the "generalised other." He further suggested that the groups to

which an individual belongs serve as significant frames of reference.

Apart from the early symbolic interactionists, another early trend having an effect on self theory was the work of psychoanalytic theorists. As discussed before, Freud was initially concerned with ego rather than self, only his followers such as Adler, Horney, Fromm, and Sullivan dealt more directly with self-conception and self-esteem. For them, the self as a reflexive structure was given a much more explicit and dynamic meaning. To reject the idea of libinal energy as the energising force behind all behaviour, these theorists assigned the prime causal role of the self as a mediator between basic drives and the hard edges of social reality.

The basic theme of Adlerian psychology (Adler, 1927) is his conception of "life-style", a term which Dinkmeyer (1965) used synonymously with the term "self-concept". According to Adler, each person develops a certain unique life-style or life-plan. The major factor determining how a person will develop a life-style or life-plan are the specific inferiorities, either fancied or real, that a person has. This life-plan, set up by an individual, aims either to overcome the defect or compensate for it. Another focal point of Adler's theory is the dynamic principle of the creative self. He believed that the over-riding impulse in motivation came from the creative self, encouraged by the acceptance and encouragement of parents and immediate friends. Unlike Freud, Adler argued that man was self-determining, making his own personality out of his heredity and experience.

Karen Horney was another psychiatrist who reacted against Freud's instinctive and genetic psychology. She (1950) saw a person as having three separate and distinct selfs: (a) the idealised-self is the self that is projected - the "ought" or

"should" self; (b) the actual-self is the self at any given moment in its growth, as the individual's behaviour reveals it; and (c) the real-self is that central inner force common to all human beings and yet unique to each, which is the deep source of growth. She felt that the self played a large part in mental health. She regarded neurosis as a disturbance on the relationship between self and others. In attempting to solve the contradictions of self, values, and other cultural factors, the individual establishes a movement pattern. The person moves towards people- compliance, move away from people - detachment, or move against people - aggression. The healthy person uses all of these three movement patterns, while the neurotic person uses only one (Horney, 1945, pp. 48-95).

As psychoanalytic theorists, Fromm (1939) and Sullivan (1940, 1947, 1953) put greater emphasis on sociological factors than did Adler and Horney. In their writings, distorted relationships with people are considered to be significant in the development of the self-concept. Fromm (1939) emphasised the close relation between a person's regard for himself and the way he is able to deal with other persons. A basic theme of his theory was that self-love is a prerequisite for the ability to love others. He theorised that people who dislike themselves tend to criticise themselves, feel stupid, unattractive, or attribute to themselves other negative inferiority feelings. Hatred turned against oneself becomes inseparable from hatred directed against others.

Sullivan (1953) specified the self process more explicity and represented an unusual aspect of the psychoanalytic perspective by being particularly social-psychological. In some respects, Sullivan is closely related to the social interaction ideas of Cooley and Mead. His description of the self was wholly inter-

personal, and he emphasised the function of symbolisation in its development. According to Sullivan, the self is built out of experience by means of reflected appraisals and is entirely a learned phenomenon. He posited no inherent self-drives or potential selves. The "self-system" is characterised as a dynamism - "a relatively enduring pattern of energy transformations which recurrently characterise the organism in its duration as a living organism" (1953, p. 103). Like most psychoanalytic theorists, he traced the development of this system to childhood. He differentiated the child's experiences into "good-me", "bad-me", and "not-me". This division arose as a result of need-satisfaction or anxiety production by the parent when the child performed an act which pleased or displeased. From this process, the self-system developed as "an organisation of educative experience called into being by the necessity to avoid or to minimise incidents of anxiety" (Sullivan, 1953, p. 165).

After almost thirty years during which the self was abandoned by academic psychology and became the subject of numerous sociological and psychoanalytical theorists, a major boost to the study of self-concept came with the emergence of humanistic psychology and the phenomenological theory in the 1950's. Humanistic psychology was primarily concerned with the idea of personal growth and the view that man is positive in his nature, is basically socialised, progressive, rational and realistic. Its theorists saw behaviourism as too mechancial a doctrine and they regarded orthodox psychoanalysis as basically pessimistic in its views of human nature. A fundamental thesis of the phenomenological approach to the self-concept is that behaviour is not only influenced by past and current experiences but by the personal meanings each individual attaches to his

perception of those experiences. The phenomenological theorists concentrate very heavily on the subjective side of the self. The self, as they define it, is heavily weighted on the side of "self-as-subject".

As phenomenologists, Snygg and Combs (1949) believed that every individual is a living, active organism engaged in organising his world. The organisation which the individual gives to the world is known as his perceptual or phenomenal field. The phenomenological field is the universe, including the individual himself, as it is perceived and experienced by him. The individual acts only on the basis of his phenomenal field as they stated "all behaviour, without exception, is completely determined by, and pertinent to, the perceptual field of the behaving organism" (Combs and Snygg, 1959, p. 20). For Combs and Snygg, the self is a part of the individual's phenomenal field. It included all the perceptions, conceptions, attitudes, and belief he has about himself. The phenomonal self is the real self and is the most important part of the phenomenal field since "all perceptions ... derive their meaning from their relation to the phenomenal self" (Combs and Snygg, 1959, p. 131). The centrality of the self in phenomenology is indicated by the postulate that a single motive for behaviour is the preservation and enhancement of the phenomenal self (Snygg and Combs, 1949, p. 58).

Maslow's major contribution to the humanistic social psychological viewpoint is based on his preoccupation with healthy persons rather than sick ones. He feels that psychology ought to focus on man's strengths and virtues, rather than his frailties and sins (Maslow, 1954). He emphasises that the highest need we strive for is "self-actualisation." When a person is

self-actualised, he has become what he has the potential to become. According to Maslow, needs are hierarchically arranged into five groups from the most basic to the highest: (1) physiological needs, (2) safety or security needs, (3) needs for love and belongings, (4) esteem needs, and (5) need for self-actualisation. When the lowest need is satisfied, the next highest need emerges to be satisfied.

Rogers' self theory and ideas about the fully functioning individual represent a synthesis of phenomenology as represented by Combs and Snygg, of social interaction theory as developed in the writings of Mead and Cooley, and of Sullivan's interpersonal theory. In Rogers' theory (1951, 1961), the self is the central aspect of personality. He views the self as a phenomenological concept which is of central importance to that individual's behaviour and adjustment. He describes the self as a social product, developing out of interpersonal relationships and striving for consistency. He believes that there is a need for positive regard both from others and from oneself, and that in every human being there is a tendency towards self-actualisation and growth so long as this is permitted by the environment.

In addition to the psychoanalytic, social-psychological, and phenomenological approaches to defining the development of self-concept, there are other theories also exploring the nature of self-concepts. Among these theories, self-esteem theory, self-consistency theory, and social comparison theory are the most influential and many theoretical framework of recent studies on self-concept are based on them.

Self-consistency theory claims that an individual's actions, attitudes and his receptivity to information from other people are strongly affected by his tendency to maintain a consistency

state on self-evaluation. The theory proposes that individuals with high self-concept will react more favorably to approval than disapproval, and individuals with low self-concept will react more favorably to disapproval than approval. Therefore, self-consistency theory argues that individuals adjust their cognitions and orientate their relationships with others in order to keep their self-concepts consistent with others' evaluations of them (Epstein, 1981).

William James (1893) was among the first to state the importance of inner consistency of the self. Lewin (1935) viewed the self as a central and relatively permanent organisation that gives consistency to the personality. According to Lecky (1945), an individual needs to maintain a unified organisation. Applying a general biological law "homeostasis" to the psychology of personality, Stagner (1951) felt that the individual seeks to maintain consistency with regard to the perception of self. Rogers (1951) in his self theory emphasised that the self strives for consistency, that the person behaves in ways consistent with the self, and that experiences not consistent with the self are perceived as threats and are either distorted or denied. In a theory of cognitive dissonance, Festinger (1957) stated that "the human organism tries to establish internal harmony, consistency, or congruity among his opinions, attitudes, knowledge and values" (p. 260). If there is "dissonance", the individual tends to find ways to gain cognitive consistency and to reduce dissonance. Individuals may misperceive evaluations, which are inconsistent to already existent feelings and perceptions, in order to prevent themselves from becoming psychologically uncomfortable as a result of contradictions of conflicting perceptions (White, 1982).

Combs and Snygg (1959) stated that the stability of the phenomenal self makes change difficult because the self ignores aspects of experience that are inconsistent with it and selects perceptions in such a way as to confirm concepts of self. Ziller (1973) accepted the concept of self-consistency and theorised that low self-esteem is association with short term adaptation and inconsistency, whereas high self-esteem is associated with long-range adaptation and consistency across tasks. In his discussion about methods of building positive self-concept, Felker (1974) viewed that the role of the self-concept is threefold. First, self-concept maintains inner consistency, which predisposes people to act in ways consistent with the views they have of themselves; second, individuals interpret new experiences in terms of previous experiences, which make it hard to change; and third, self-concept leads to a set of expectations that creates considerations that determine how others will treat us.

Self-esteem theory is another explanation for people's reaction to failure and success experiences and evaluations from others. Self-esteem theorists postulate that individuals have a need for positive self-esteem which is satisfied by the approval they receive from others and is frustrated by their disapproval (Jones, 1973). This theory assumes that individuals have a need to enhance their self-evaluation and to increase, maintain, or confirm their feelings of worth, effectiveness and self-satisfaction. The difference in this theory from self-consistency theory is that the individual wishes to gain self-esteem rather than to achieve self-consistency. In this case, a person would respond favorably to positive evaluation of self, which is assumed to satisfy esteem needs, and to respond

unfavourably to negative evaluations of self, which would frustrate the esteem needs.

Jones (1973) compared the self-consistency theory with the self-esteem theory by critically evaluating studies that support both theories. In most studies the self-denigrator is happy when praised and unhappy when derided. On the other hand, Shrauger and Lund (1975) supported the consistency theory after evaluating these two opposing theories. To date there is little resolution of the self-esteem versus self-consistency controversy - some results favour one theory while other results support its rival. Both theories, however, do provide an explanation of how an individual reacts to failure and success experiences and evaluations from others.

Social comparison theory is mainly derived from the reference-group theory proposed by Hyman to illustrate the importance of social environment in determining individuals' concepts of self and their behaviour (Suls and Miller, 1977; Suls and Mullen, 1982; Suls and Sanders, 1982). In 1942, Hyman first used the term "reference-group" to explain the data he collected concerning how individuals understand their own subjective socio-economic statuses. Hyman (1942) discovered that an individual's reported status was a function not of his actual attributes such as education and income but rather of what social groups he employed as standards (his reference-groups). Adopting the idea from the reference-group theory which stressed the power of the group over the individual, Festinger (1954) proposed the social comparison theory to explain how individuals use the group to fulfil their informational needs for evaluating their opinion and abilities. One of the basic tenets of social comparison theory is that "in the absence of objective standards

of comparison, people will employ significant others in their environment as the bases for forming estimates of self worth" (Strang, Smith and Rogers, 1978, p. 488). Festinger also postulated what is called "the similarity hypothesis", that is "given a range of possible persons for comparison, someone else close to one's ability or opinion will be chosen for comparison" (Corollary IIIA, p. 121). Although several scholars have noted that there is some ambiguity in Festinger's original similarity hypothesis, yet social comparison theory has its own contribution to explaining the process by which an individual develops and maintains self-regard (Singer, 1980; Suls and Mullen, 1982; Suls and Sanders, 1982).

To sum up the theories reviewed in this section, the above discussion reveals that theories about self-concept have shifted from a philosophic and subjective experiencing "I" to a psycho-logical and empirical "Me", from the self as knower to the self as known or the combination of both. Despite the introduction of a rigorous behaviourist stance by Watson the self-concept was kept alive and made a central feature in many theorists' postulations. Although there are a variety of theoretical positions on the nature of the self-concept, it is apparent that most theorists agree that the self is an important element in understanding human behaviour. Three most outstanding historical theories to explore the nature of self-concept are the psycho-analytic theory, the social-psychological theory, and the phenomenological theory. Under the framework of these theories and some other theories, such as the self-consistency theory, the self-esteem theory, and the social comparison theory, most of the recent researchers are still enthusiastically exploring the nature of self-concept.

C. Formation of Children's Self-Concept in Schools

Although children's self-concepts have been established in the early years of childhood, they remain pliable during the elementary years (Bush-Rossnagal and Vance, 1982; Covington and Beery, 1976; Faust, 1980; Leonetti, 1980). As the self-concept is a product of social interaction (Combs and Snygg, 1959; Kinch, 1963; Mead, 1934; Sullivan, 1947) and emerges as a result of the individual's perception of the responses of "significant others" to him or her (Combs, 1962; Cooley, 1902; Tilford, 1974), there is reason to assume that a school is second only to the home as an institution which determines the young individual's concept of himself and his attitudes of self acceptance or self rejection (Jersild, 1952; Mistry, 1960). This idea is also shared by Beane, Lipka and Ludewig (1980) when they state, "each experience in school can affect self-concept, personally held values, and/or the subsequent self-esteem of the learners" (p. 85). Some writers and researchers, however, have discovered that "schools can be hotbeds for developing negative self-concepts" (Hansen and Maynard, 1973, p. 30). Purkey (1970) also claims that "schools are places where students face failures, rejection, and daily reminders of their limitations. Because some schools are unable to adjust themselves to individual differences of students ..., untold children face daily deprecation and humiliation" (p. 40).

When Morse (1964) measured the self-concepts of over six hundred students in alternative grade from grades three to eleven, he found a gradual decrease in professed self-regard with age. Of the third-grade children, eighty-five percent were proud of their school performance, compared to only fifty-three percent of the eleventh-grade youngsters. In a paper presented

at the meeting of the American Educational Research Association in Chicago, Hamachek (1972) revealed the fact that approximately one-third of those students who start school each year drop out by the eleventh grade. Hamachek feels that the reason why these youngsters dropped out is not because of some proximate causes, but because of more or less continuous exposure to failure experiences which reinforce feelings of worthlessness and inadequacy.

Why do some schools fail to provide opportunities for students to develop positive self-concept? Although innovations intended to foster a positive self-concept and high self-esteem are being introduced into many schools, yet many of these programmes have little theoretical or experimental support and consequently tend to be ineffective (Steel, 1978, p. 17). It has been also pointed out by some researchers (Brookover, LePere, Hamachek, Thomas, and Erickson, 1965; Weiner, Heckhausen, Meyer, and Cook, 1972) that simply telling children that they are successful, encouraging them to persist, or flattering or rewarding them are techniques unlikely to increase feelings of self-esteem. Another explanation is that since self-concept is developed in relationship with "significant others", it is reasonable to believe that teachers who are usually viewed as "significant others" to children can exert greater influences on the formation of children's self-concept than the whole school system.

As people are social beings, they are "highly dependent on and oriented toward other humans and will to a sizable extent define themselves in terms of their relationships to other people" (McGuire and McGuire, 1982, p. 79). Only some people, however, surrounding us can be viewed as the "significant others"

to us. According to Kash and Borich (1978), the "significant other" is "an individual selected and unconditionally valued by the developing self as a source of self reflection and an interpreter of the behavioural dialogue" (p. 12). In other words, "the significant other interprets experiences and events for the child through the feedback, in addition to reflecting an image of the child" (Burns, 1982, p. 165).

How do "significant others" influence our perception or our own self-image? There are some empirical studies supporting the hypothesis that a person's self-concept is associated with the conception held of him by "significant others". Videback (1960) and Maehn (1962) both found that short-term change in self-concept could be induced by having someone, who is viewed as important by the subjects, make an evaluative statement, while the subjects are performing a task. Negative and disapproving statements made by "significant others" were accompanied by a decrease in the self-concept rating of the subject. Other studies also support the existence of a relationship between a student's self-concept and his interpretation of someone else's evaluation of him (Cough, 1958; Kemper, 1966; Openshaw and Thomas, 1981; Quarantelli and Cooper, 1966).

A logical question which arises is who are the "significant others" in schools? From the developmental point of view, McGuire and McGuire (1982) found that a child's selection of the "significant others" become more cosmopolitan as he matures from age seven through seventeen (p. 95). They also reported that, as regards authority figures, the child's self-definition progressively shifts from relationship with parents to relation-ship with teachers (p. 82). This idea has been found in some writings of self-concept. For instance, Yamamoto (1972) notes

"during the elementary years, teacher plays an extremely important role in the development of the self-image" (p. 84). In discussing the importance of teachers in affecting their students' self-concepts, Jersild (1952) also states, "the teacher ... is an important factor in the interpersonal field of forces which influence the student's self development" (p. 94). Through their reflection, feedback, classroom interactions, and some specifically designed programmes aiming at enhancing children's self-esteem, teachers do sometimes modify their children's self-regards. Indeed, there are some studies demonstrating that teachers can exert significant influence on the formation of children's self-concept.

One way in which teachers can change the self-concept of their students is through their interactions with them in schools (Battle, 1981; Del-Polito, 1980; Peck, Fox, and Marston, 1977). During their daily contacts with students, teachers consciously and unconsciously supply different types of feedback which "provide cues that help describe the type of person he (the child) is, that define the boundaries of his involvements and commitments, and that underlie the assumptions he makes about how he should treat others and be treated by them" (Coopersmith and Feldman, 1974, p. 202). Students are not passive in the classroom; in contrast, they can interpret how their teachers feel about them. In a study, Davidson and Lang (1960) showed that even though in the primary level, pupils were well able to evaluate their teachers' feelings towards them. Those pupils who perceived the teacher as one who presented favourable regard to them were the possessors of more positive self-concepts and higher academic performance.

On the premise that self-concepts are learned structure derived from interaction with others and the environment, Staines (1958) formed two hypotheses relating the role of the teacher to the self-concept of the pupil. He hypothesised that teachers could be distinguished according to their use of pupils' self-referencing comments and that change in academic performance and in pupil self-image could be achieved through teaching. To test these two hypotheses, Staines conducted his investigation in four elementary classrooms, involving careful observation, recording, and analysing of data from teacher-child and child-child interactions. The results showed marked differences between teachers in the frequency of references about a child in their comments, particularly in their positive or negative comments on the child's performance, status, and self-confidence. Also, Staines found that it was possible to teach so that specific change could be made in the child's self-picture.

In order to confirm Staines' findings that self-concept is highly related to the feedback received from teachers, Chadwick (1967) replicated the study with secondary-school female subjects, aged twelve to thirteen years old. Using a nine-point self rating test devised by Staines, students' concepts of real, ideal, and other selves were identified. Results of this study indicated a highly significant difference between experimental and control groups on two self dimensions, namely, differentiation and certainty. From their findings, Staines and Chadwick confirmed the relationship between the teacher's positive comment and pupil's self-regard.

With a larger sample of subjects, Peck, Fox and Marston (1977) also examined the teacher effects on student achievement and self-esteem. Altogether fifty-three sixth-grade teachers

and one thousand one hundred and ninety Black, Chicano and Anglo students were involved in their project. Effects were studied of twelve teacher and eleven student characteristics on seven student outcomes which consisted of cognitive, affective, and coping skills. A series of covariance and regression analyses showed significant curvilinear and interaction effects. The investigators reported that teacher-student interaction did have some positive effects on the self-esteem of students in their study.

Whereas Staines' and Chadwick's work illustrates the effects of the teacher's comments on his pupils' self-concept, Palfrey (1973) demonstrated how the headteachers' attitudes and expectations can affect their pupils' self-concepts in the secondary school. Two small secondary schools, one boys' and one girls', were involved in the study. The headmaster of the boys' school communicated negative expectations to his pupils, whereas the headmistress of the girls' school tended to communicate positive expectations to her students. The responses of the fourth-year boys and girls to a questionnaire were compared and it was found that the girls' responses were more positive in their self-evaluation.

Using an observational method, Ensor (1976) recorded teacher-pupil dyadic interactions in four separate classrooms. Two groups of pupils in each classroom were identified; those with a high self-concept of their abilities (SCA) and those with a low SCA. Analysis of observation data showed that the high-SCA children received more favourable communications from their teachers, initiated more acceptable behaviour patterns with the teachers and were more favourably evaluated by their teachers. On the other hand, the low-SCA children received more behavioural

criticism from their teachers, initiated less acceptable behavioural pattern with their teachers and were less favourably evaluated by their teachers than their high-SCA counterparts.

Although the previous cited studies indicated teachers' feedback, in the form of verbal and nonverbal communication, had a positive effect on children's self-concept, there are some studies showing the opposite trend. Hatmaker (1976) conducted an investigation to determine the effects of the positive academic feedback on sixth-grade student self-esteem. After administering the Coopersmith Self-Esteem Inventory (SEI) to all students in six classrooms of two elementary schools, sixty-one students were identified as having low self-esteem. Three of the classrooms containing twenty-eight of these students were randomly assigned to the intervention treatment. The methodology of the intervention-directed teachers was to give positive feedback to experimental subjects for correct written and oral responses, while ignoring incorrect responses. No difference was found between the experimental and control groups in their self-esteem scores. This finding was explained by the author by suggesting that subjects with low-reading levels rejected positive reinforcement in order to maintain inner consistency, whereas subjects with higher reading-achievement levels responded to the positive feedback with integration and an increase in positive self-esteem.

Using fourth-grade pupils as a sample, Bruya (1976) examined the effect of significant other's verbalisation upon the developing self-concept of students. Self-concept was assessed using the Piers-Harris Children Self-Concept Scale. In each of six classrooms eighteen children were assigned either to an experimental or a control group. The experimental group received

positive verbalisation from a significant other teacher, while the control group received no treatment. Based on the statistical analysis, Bruya found that positive verbalisation did not alter measured self-concept of the students.

In addition to teachers' feedback and expectation, writers and researchers in the field of self-concept assume that both teachers' personality and self-concept may affect their children's self-evaluation. In discussing the development of self-concept in the early years, Yamamoto (1972) states, "undoubtedly, the personality of a teacher and his attitude toward and understanding of children are of paramount importance for the total social and emotional growth and adjustment of his pupils" (p. 60). Similarly, Gill (1969) reported, in the American Educational Research Association Convention, that teachers' attitudes towards students are vitally important in shaping the self-concepts of their students.

In order to evaluate the relationship between achievement, teacher behaviour, and children's self-concept, Spaulding (1963) carried out an investigation in twenty-one fourth- and sixth-grade classrooms in nine schools. He found that children with high self-concepts were in classrooms in which their teachers were more learner supportive and were calm, accepting, and facilitating. When teachers were more dominative, sarcastic, grim, and threating, the children had negative self feelings.

A study was conducted by Meyer (1977) to examine the relationship between the self-esteem of students and the self-actualisation of their teachers. The Coopersmith Self-Esteem Inventory was administered to two thousand one hundred and eighty-seven elementary students from first through to eightth grade to measure their self-esteem. At the same time,

ninety-six teachers completed the Shostrom Personal Orientation Inventory in which their scores on the Self-Actualising Value Scale were used for analysis. Teachers scoring above the mean were classified as high, while those scoring below the mean were classified as low. The Pearson product-moment correlation was used to analyse the SAV scores of the teachers and the SEI scores of their students. The results showed that in grades seven and eight self-esteem scores of students were significantly correlated with the self-actualising values of teachers. The self-esteem scores of students whose teachers were identified as having high SAV scores were significantly higher than the self-esteem scores of students whose teachers were identified as having low SAV scores. Such findings, however, were not identified with grades one through to six.

Cheong and Wadden (1978) carried out a study to explore the impact of teachers' personality upon their pupils' self-concept. They hypothesised that children taught by teachers more experimental in attitude would achieve significantly higher scores in self-concept than children taught by teachers less experimental in attitude. After administering the Experimentalism Scale and the Dogmatism Scale to one hundred and sixty-eight elementary-school teachers, eleven pairs of teachers were selected as subjects of the study. Each pair consisted of one most dogmatic teacher and one most experimental teacher. The Piers-Harris Children Self-Concept Scale was given to all children of these twenty-two teachers in two sessions, with an interval of five months. Analysis of data showed that pupils who were taught by the most experimental groups of teachers had significantly higher self-concepts than pupils who were taught by the least experimental group of teachers. This study confirms the statement that

teachers' personality can affect their pupils' self-evaluation.

In a paper presented at the annual meeting of the American Educational Research Association in Toronto, Fox and Peck (1978) reported their study examining the relationship of teachers' self-descriptions to their students' changes over a school year. In their investigation, teacher measurements were obtained through observations of behaviour and teachers' self-reports; while student measurements used were based on self-report scales. During the school year tests were administered to pupils over several class periods at the beginning of the autumn term and near the close of the spring term. Both teachers and pupils were asked to rate themselves on such personality characteristics as self-esteem, introversion, and reactions to other people. Teachers also rated themselves on such attitude and coping items as anxiety, authority, handling children in the classroom, task achievement, and positive and negative feelings. The results of a year's observation and comparison between attitudes and outcomes indicated a modest degree of relatedness between teacher personality and observed teaching behaviour. Significant relationships were found between teacher personality and changes in pupils' achievement, attitudes, and self-esteem.

What is the relationship between teacher's self-concept and children's self-concept in the school situation? There have been theories suggesting that if an individual thinks well of himself, he is likely to think well of others (Adler, 1930; Murphy, 1947; Roger, 1951). Numerous studies also have reported that those who accept themselves tend to be more accepting of others and to perceive others as more accepting (Aspy, 1969; Berger, 1952; Omwake, 1954; Trent, 1957). Further, according to Omwake, those who reject themselves hold a correspondingly low opinion of others

and perceive others as being self-rejecting. In his study of one hundred and twenty third-grade students, Aspy (1969) found that there was a positive relationship between teachers' self-concept and students' cognitive growth.

In their research on the perceptual organisation of effective helpers, Combs and his associates (1965, 1969) discovered that effective teachers, counsellors, and priests could be distinguished from ineffective helpers on the bases of their attitudes about themselves and others. McCallon (1967) also found that the more favourably a teacher perceived a student "considered-least-desirable" to teach, the greater was that student's reduction in his discrepancy between his real and ideal self. A similar view was reported by Blume (1968), in his study, of how the child sees himself *in relation* to how the teacher sees himself. He claimed that teachers who are high on self-esteem tended to associate with groups of students who also had high self-esteem.

To examine the theory that a teacher's level of self-concept is related to the development of self-concept in children, Edeburn and Landry (1975) conducted a study in two elementary schools with a sample consisting of two hundred and ninety-five students and sixteen teachers. The self-concepts of students were measured at the beginning and at the end of the academic year using the primary form of the Self Appraisal Inventory. Teachers' self-concepts were assessed by the Index of Adjustment and Values. An analysis of variance of residual gain scores was employed to test the significance of the relationship. The results showed that teacher self-concept had an effect upon the development of the student's self-concept.

In addition to teachers' self-concept, personality, expectation, and feedback, there are studies demonstrating that, through

some specially designed programmes, teachers may exert significant influences on the formation of children's self-concepts in schools. For example, Kulp (1978) carried out a study to examine the effects of a seminar in self-concept theory and process education on teachers' classroom behaviour and pupils' responses to that behaviour. He designed a programme to teach in-service training teachers how to enhance the self-esteem of their children. Eight hypotheses were formulated to determine the effect of selected independent variables on various dependent variables among which one was the child-inferred self-concept. Significant differences were found on four variables (verbal praise, student response to praise, self-concept, and sense of achievement responsibility), favouring the experimental group which received the treatment. The author recommended that self concept theory, research, and process education should be included in both preservice and inservice teacher training.

On the assumption that an increase in pupils' positive self-referent statements would result in a concomitant increase in pupils' self-concept, Danzig (1977) developed a technique based on behaviour modification to improve the self-concept of educable mentally-retarded children. Altogether, sixteen special-education teachers and sixty-one educable mentally-retarded pupils from four elementary and two junior high schools participated in the study. The special-education teachers were randomly assigned to an experimental or control group. Teachers in the experimental group were trained to reinforce pupils' positive self-referent statements. The Piers-Harris Children's Self-Concept Scale was administered before and after teacher training to measure change in pupils' self-concept scores. Data analysis showed that teachers' praise, as a verbal reinforcer,

effectively increased the number of pupils' positive self-referent statements.

A similar experiment was conducted by Jones (1978) using a different group of subjects. The purposes of Jones' study were to determine if a ten-week systematic behaviour-modification programme for classroom teachers had an effect on the verbal interactions of these classroom teachers and to examine the effect of these verbal exchanges on the self-concept of the students. Twenty teachers were chosen at random for the experimental and control teachers. From each of these experimental and control teachers' classrooms, ten students were also selected randomly. The instruments used to collect the data were the Flanders Interaction Analysis System for the teachers, and the Piers-Harris Children's Self-Concept Scale for the students. Pre- and post-data gathering procedures were used based on a twenty-week time interval. Jones reported that students of the experimental teachers had more positive self-concept gains as compared with the students of control teachers.

Realising the positive effect of a programme in the fine arts on students' self-concept, Bragg (1980) investigated the effect of a creative enrichment programme, in the form of a classroom musical production, on the self-esteem of a group of fifth-grade students. Children's self-esteem scores were obtained using the Coopersmith Self-Esteem Inventory and the Piers-Harris Children's Self-Concept Scale. One half of each of four classrooms was randomly selected and placed either in the experimental group or the control group. Two teachers assigned to the treatment were given a one-day inservice course on how to stage and carry out a classroom musical. It was hypothesised that those students exposed to the treatment would experience significantly

higher gains in self-esteem, self-concept, attitude towards school, and attitude towards anxiety. Statistically significant differences were obtained between the experimental and control groups with respect to all variables. The author concluded that a classroom musical production was successful in monitoring a positive attitude towards self-concept, self-esteem, school, and anxiety.

Contrasting with the findings, indicating that the teacher can change children's self-concept through especially designed programmes, there are other studies showing that some programmes have no effect on children's self-concept. In the field of special education, it is generally assumed that a diagnostic prescriptive programme is effective in improving the academic achievement and self-concept of handicapped children. Research carried out by Chamblee (1976) and Woodson (1976), however, does not justify this statement. Although the experimental groups in both studies received diagnostic prescriptive instructions administered by special-education teachers, an examination of the self-concept data revealed that there were no differences in the self-concept improvement of the students in either the experimental or the comparison group.

Sollitto (1977) conducted a study to evaluate the effects of a humanistic-education curriculum on primary-school children's self-esteem. The sample consisted of six teachers and one hundred and twenty-eight students in the first, second, and third grade. One class at each grade level experienced the Human Development Program for thirty minutes, twice weekly for fifteen weeks. For comparison, one class at each grade level followed a regular academic programme with no additional treatment. All students were pre- and post-tested with the

Self-Esteem Inventory. The results indicated that there was no significant effect of the programme on the self-esteem of the experimental group as compared with the control group.

There is reason to believe that teachers after receiving an affective training will enhance the self-concept of their pupils. To check this assumption Satterlund (1981) investigated the effects of an effective inservice training programme upon the self-concept of third-, fourth-, and fifth-grade students. His programme was designed to help teachers generate and select appropriate affective teaching behaviour in classroom. After training, the experimental-group teachers applied these techniques in their classrooms for four months. Children's self-concept was assessed by the Self-Concept Assessment Inventory. The author, however, found that there were no significant differences between the student self-concept scores in the treatment group and those in the control group.

The studies reviewed in this section provide some evidence that children's self-concepts are still under modification in schools. Many writers have unanimously agreed that school experience can affect the self-concept of learners. Some students, however, develop negative self-image because in schools they face failures, rejection and daily deprecation. Although some programmes have been designed to enhance children's self-concept in classrooms, yet many of them fail to do so possibly due to inadequate theoretical and empirical support. As pupils' "significant others", teachers are believed to play an extremely important role in the development of pupils' self-images. There are some studies showing that teachers' attitudes, expectation, feedback, and classroom behaviour have effects on improving children's self-pictures. Findings of other studies, however,

do not support this statement, especially in the area of enhancing self-esteem through some specially designed programmes. It is reasonable to believe that cooperation between school and home is a vital element in helping low self-concept students. Indeed, parental involvement as an important factor in the success of any such programme has been demonstrated in some studies (Blazer, 1981; Cother, 1979; Flores, 1980).

D. Self-Concept of Mentally-Retarded Children

Self-concept studies have proliferated since both psychologists and educators recognised the importance of the self-image in determining human behaviour. The extension of self-concept studies to "handicapped" populations, however, is extremely slow. In a recent review, Thomas (1980) states that "the self-concept of the handicapped child is a seriously underresearched area where the results of work to date are contradictory and inconclusive" (p. 63). In the field of mental retardation, studies of this issue are further limited by the poor introspective skills, insufficient verbal fluency and sub-average intellectual ability of this population in addition to the methodological problems that plague studies of the self-concept of normal population (Balla and Zigler, 1979; Brown, 1980; Gibbons, 1981; Lawrence and Winschel, 1973). As a result, most findings of self-concept studies in the field of mental retardation are inconsistent.

It is generally assumed that the mentally-retarded have negative self-concepts and low self-esteem when compared with the normal population because they are also assumed to experience more frustration and failure (Burns, 1982; Robinson and Robinson, 1976; Simpson and Meaney, 1979). This assumption,

however, has been confirmed only by some studies but rejected by others. In a study comparing the self-concept of mentally-retarded students to that of normal students, Ringness (1961) found that the bright children (IQs 120 and above) in regular classes expressed the most positive self-images followed by the retarded group (IQs 50-80) and last of all the intellectually average group (IQs 90-110). When independent criteria were used to determine how realistic the self-concept was, Ringness noted that retarded children tend to over-estimate their self-images than either of the other nonretarded groups.

A similar result was found in a study conducted by Fine and Caldwell (1967) when they compared the self-concept of educable mentally-retarded (EMR) students in special classes with that of regular-class students. They reported that elementary special-class EMR students rated themselves as average or above average in self-concept in comparison with both special-school students and regular-class students.

To justify the construct validity of the Piers-Harris Children's Self Concept Scale, Piers and Harris (1964) compared the responses of eighty-eight institutionalised retarded female adolescents with those of intellectually-average individuals at the third- and sixth-grade levels. They found that these retarded adolescents had a more adverse self-image than any other nonretarded groups. They also discovered that the nonretarded children of higher IQs and academic achievement had more positive self-images, thereby providing some evidence that self-concept is a function of intellectual competence.

Piers-Harris' findings were further confirmed by another investigation carried out by O'Such, Havertape and Pierce (1979). These researchers attempted to find out group differences in

self-concept among educationally handicapped, normal, and gifted children, aged eight to nine years and eleven to twelve years. An analysis of the self-concept scores obtained on the Piers-Harris Children's Self-Concept Scale showed that normal and gifted children achieved significantly higher self-concept scores than the educationally-handicapped children. They concluded that self-concept seemed related to overall ability because the gifted scored higher than normal children, and normal children, in turn, scored higher than the handicapped groups.

Not all studies of self-concept have found the self-concept scores of the mentally-retarded children to be higher, lower or similar to those of other groups. For example, Curtis (1964) found no difference between the self-concept of groups of EMR students and non-retarded students who had the same mental age. In another two studies (Collins and Burger, 1970; Collins, Burger and Doherty, 1970), no overall differences in self-concept were identified between groups of educable mentally-retarded adolescents in a segregated special school and nonretarded individuals in a public high school. It was reported, however, that in some specific aspects of the self-concept the retarded adolescent has a more negative view of himself.

In summary, no firm conclusion can be drawn from the above research studies although it may seem evident that retarded children have more adverse self-concepts than do nonretarded children. One reason for these inconsistent results may be the instruments used to assess the self-concept of both normal and retarded populations. Thus,can we use a test which has been standardised on a normal population to measure the self-concept of mentally-retarded people? Do different levels of intelligence

and insufficient receptive-language ability affect the mentally-retarded persons in responding to the self-concept scales? All these questions should be considered before we use a test to measure the self-concept of mentally-retarded people.

In addition to comparing the self-concept scores of mentally-retarded children with those of nonretarded children, another way of investigating the self-concept of mentally-handicapped students is to compare the self-concept of retarded children in special classes (segregation) and that of children placed in ordinary schools (integration or mainstreaming). Generally, results of research in this area are very disappointing (Gottlieb, 1981; Heintz and Blackman, 1977; Semmel and Cheney, 1979; Semmel, Gottlieb, and Robinson, 1979; Strain and Kerr, 1981). Some research observed that children in special classes had lower self-concept (Carroll, 1967; Meyerowitz, 1962; Welch, 1965); some demonstrated higher self-concept among special-class students (Hoeltke, 1966; Schurr and Brookover, 1967; Towne, Joiner, and Schurr, 1967); and some investigations showed no significant differences (Bacher, 1964; Knight, 1967; Shulman, 1977).

In examining the effect of class placement on the self-concept of handicapped students, Meyerowitz (1962) was one of the first to investigate this phenomenon. In fact, his research was the first efficacy study to use the self-concept score as a dependent measure. In this study, one hundred and twenty EMR children were assigned randomly to special or regular classes at the beginning of the first grade. The control group, composed of sixty children of normal intelligence, was matched on the following dimensions: area of residence, father's occupation, and family income. The researcher administered the Illinois

Index of Self-Derogation to all subjects. Results indicated that EMR children attributed significantly more undesirable descriptions to themselves and used more derogatory comments than did regular class EMR children.

Similar findings had been found in Welch's (1965) study when he examined self-concept development in special class and in partially integrated EMR children. Again, the Illinois Index of Self-Derogation was used to assess the self-concept of the students. The test was administered when children first entered the contrasting placements and then eight months later. No pre-post differences were noted for either the segregated group or a group of normal controls. Partially-integrated children offered fewer derogatory comments about themselves and they interacted more with normal children. Overall, segregated children tended to describe themselves in more derogatory terms than did integrated or normal youngsters.

Carroll (1967) replicated Meyerowitz's study and conducted a longitudinal research to study the self-concept of two groups of mildly mentally-retarded children who had no previous special-education experience. One group was placed in a totally-segregated programme, the other in a partially-integrated one. The Illinois Index of Self-Derogation was administered to all subjects both at the beginning and at the end of the academic year. It was found that the partially-integrated group showed an increase in self-esteem during the school year, whereas the segregated students showed a significant decrease in self-esteem. At the end of the experiment, there was a significant reduction in the number of self-derogatory statements by partially-integrated children.

Additional evidence of potential support for regular-class

placement for EMR children is provided by Fine and Caldwell (1967). In this study, forty-two EMR children along with their teachers were administered a questionnaire that addressed the students' perceptions of themselves vis-a-vis reading, arithmetic, and general ability. The results indicated that regular-class children tended to rate themselves as equal or superior to their classmates in all areas. Teachers, on the other hand, typically rated EMR children below their classmates in all areas.

Not all studies show that mentally-retarded children have negative self-concept and lower self-esteem in special classes. On the contrary, there are some studies indicating that EMR students in special classes have more positive self-images than those placed in regular classes. For example, Hoeltke (1966) examined the self-concept of special-class EMR children who had been in segregated settings for at least three years and that of EMR children who had never been in a special class. Teacher ratings were employed with specific attention to attitudes towards the teacher and self-concept as a learner. Special-class children were found to be more positive towards themselves as learners than regular-class EMR youngsters. There were no differences between the two groups in their attitudes towards their teachers.

Using a time series design, Towne, Joiner, and Schurr (1967) studied the self-concept of sixty-two EMR students, extending from a time prior to placement in self-contained classrooms to the end of the first year in the class. These children were given an eight-item self-concept scale on five separate occasions. The first testing was held before children segregated into special-classes and the remaining four testing times were distributed evenly across the first year of special-

class placement. All test items were designed to probe children's evaluation of their school performance. The result indicated that when students were placed in special-classes they viewed themselves as more competent than when they were in regular classes. This trend, however, diminished towards the end of the first year.

In a follow-up study, Schurr and Brookover (1967) enlarged the sample by adding fourteen newly placed students to the original subjects in Towne, Joiner, and Schurr's study. An ascending linear trend in the general self-concept of academic ability (GSCA) was noted over the eighteen months of the study. In addition, they discovered that when the subjects were reassigned to regular classes their GSCA scores showed a descending trend over the first year. Schurr and Brookover concluded that the increase in the GSCA of self-contained EMR students was a product of comparisons with their self-contained class peers.

In contrast to the above cited research showing either an increase or decrease in self-esteem of EMR students in special classes, no differences in self-concept have been found as a function of integration in another group of studies. In an efficacy study, self-concept of thirty children with IQ scores between seventy-five and ninety-five were examined by Bacher (1964). The experimental group composed of fifteen students who attended the slow-learner classes and the control group with same number of students who had not been placed in special classes because of unavailable space. Self-concept was assessed on the Columbia Classroom Social Distance Scale and the students' "I Think Score" on the Davidson-Long Checklist of Trait Names. On both these indices, no differences were found between the groups.

A somewhat different approach to study the effect of special-class placement on the self-concept of mentally-retarded children was used by Mayer (1966). This researcher investigated the effect of early and late placement in special classes on the self-concept of EMR students. The basic hypothesis tested was that early placement of EMR students would result in more positive self-concept than later placement. Altogether one hundred EMR children in special classes were involved in the study. The children were divided into those who were placed in special classes during the first three grades, during the fourth through sixth grades, and during the seventh through ninth grades. Self-concept was assessed on the Children's Self-Concept Scale and The Way I Feel About Myself. No differences were found in self-concept scores across EMR groups. Another important finding was the similarity between the self-concept scores of normal children in the standardisation sample and the EMR children. The author interpreted these results as indicating that long-term experience in special classes may have a positive effect on self-concept.

Walker (1974) employed a variation of the Illinois Index of Self-Derogation to assess the self-concept and social adjustment of EMR students in resource rooms and those in segregated classes. He hypothesised that at the end of a two-year period, EMR students taught in a regular class with "resource room" exposure (experimental group) would be less self-derogatory, better socially adjusted, and make greater academic gains than a control group assigned to self-contained classes. Twenty-nine children assigned to resource rooms and forty-one children assigned to segregated classes were matched for chronological age, IQ, and reading level. Children's self-concepts were assessed on the

Bristol Social Adjustment Guides. The results showed that there were no statistically significant differences between the groups on the measure of self-concept at the end of a two-year period.

A more thorough study of the self-concept and social adjustment of segregated and integrated EMR children was conducted by Budoff and Gottlieb (1976). In this study, seventeen of the thirty-one EMR subjects were assigned to a regular class with support from a learning centre. The investigators administered an extensive battery of instruments to all subjects at the end of the school year prior to integration. two months after the beginning of the first year of integration, and at the end of one year. Analysis of data indicated that the integrated students did not differ significantly from the segregated students on academic self-concept. After one school year, however, integrated students felt more positive about their prospects in school, expressed more of a sense of control over their environment, and viewed themselves as more competent learners.

The studies reviewed in previous sections indicate that research on the self-concept of educationally-subnormal children, in different educational settings, is characterised by its ambiguous results. Not only did research conducted in the early 1970's show these characteristics, but results of more recent studies are also inconclusive. For example, Crockett (1977) and Reese-Dukes (1981) reported that there was a positive relationship between integration and self-concept and that children who were integrated had higher self-concept scores than those in special classes. In contrast, Lessa (1976) found that EMR students in special classes had better self-concept than EMR students integrated into regular classrooms. On the

other hand, Burke (1979), Hyde (1981), and Shulman (1977) found no differences as a function of class placement. The only consistent result at the present time is that EMR students who are partially integrated and partially segregated are found to have significantly higher self-concept scores than do EMR students who are totally segregated (Carroll, 1967; Strang, Smith and Rogers, 1978). Strang, Smith and Rogers explained this finding by suggesting that children, having a dual reference group of both EMR and nonretarded peers, are able to gain satisfaction from knowing that they, too, are "normal" and that they are also as capable as a group of other children, i.e., their segregated classmates.

A review by Semmel and Cheney (1979) concluded that "placement alone probably has little effect on the self-concept of handicapped children. What is important is probably those variables within the classroom which are directly under the control of the teacher" (p. 67). Luftig (1980) in his paper, which made suggestions to educators, emphasised variables such as IQ, reading achievement, and being the only retarded child mainstreamed into a class, should be taken into account during placement decisions. He also pointed out that high IQ EMR students do well in a mainstreamed environment in terms of self-concept whereas low IQ EMR students with poor reading skills maintain higher self-concept in self-contained classes.

From all studies reviewed in this section, it appears to be true at the present time that no firm conclusion can be drawn from the research on the self-concept of mentally-retarded children. Either in comparing their self-concept with that of normal children or studying the effect of different class placements, some research reported positive results, some

demonstrated negative relationship, and some showed no effect or no differences. Although conducting research in the field of mental retardation may be plagued by the low intellectual abilities of mentally-handicapped people, researchers should realise some limitations of their research design. One vital factor which contributes to the unpromising results is often the instrument they employ in assessing the self-concept of mentally-handicapped children. Can they use an instrument which was originally designed for a normal population to measure the self-concept of retarded children? Even though some investigators have modified the instrument before administering it to the retarded children, they have not conducted a pilot study to testify the suitability of this modified instrument when applying it to mentally-handicapped children. In order to reach a more promising result, a pilot study to justify the suitability of each instrument should be carried out.

E. Self-Concept and Classroom Behaviour

While many investigators have examined the relationship between self-concept and academic achievement (Black, 1974; Gordon, 1977; Marx and Winne, 1975; Williams, 1973), and between behaviour and achievement (Harper, Kehle, and Guidubaldi, 1977; Lambert, Hartsought and Zimmerman, 1976; Lindholm, Touliatos, and Rich, 1977; Reynolds, 1978), there are some studies focusing on the direct relationship between classroom behaviour and self-concept.

Generally speaking, the level of self-concept has been found to be related to a variety of interpersonal behaviour (Berkowitz, 1970; Lundgeren, 1978; Marlowe and Gergen, 1968; Rosenhan, Salovey, Karylowski, and Hargis, 1981). In particular, persons

with low self-concept have been found to prefer a greater amount of personal space (i.e., to maintain greater interpersonal distance) than those with high self-concept (Dykman and Reis, 1979; Frankel and Barrett, 1971).

To study the relationship between self-concept and classroom behaviour, Shiffler, Saver and Nadelman (1977) observed fifty-three elementary-school children in a classroom setting, using a classroom observation scale. Profile analysis of the data indicated significantly different patterns of classroom behaviour for different levels of self-concept. The highest self-concept groups showed greatest percentage of task-oriented behaviours; the lowest self-concept groups had the largest percentage of nondirected behaviours.

Using a combination of interview, observation, and sociometrics, Cenname (1977) investigated the school behaviour of eleven fourth- and fifth-grade children with good and poor self-concepts. His data disclosed distinct patterns of behaviour for the two groups. Socially, the good self-concept group had more extensive interactions with their classmates. In contrast, the poor self-concept group not only had far fewer positive interactions with their peers, but also had developed behavioural patterns which caused their peers to reject them. In their relationships with adults, the two groups displayed a great variability in their interactions with teachers. The good self-concept group exhibited good work habits, positive attitudes towards the teacher and their school tasks, and good classroom behaviour. On the contrary, interactions between teachers and the poor self-concept group were often strained. These children had not developed good work habits. Often they expressed negative attitudes towards school, and their incidence of disruptive

behaviour was higher. Academically, children with good self-concept displayed consistent achievement and showed positive attitudes towards the tasks required of them in school. Conversely, children with poor self-concept displayed negative and some hostile attitudes in schools.

Reynolds (1980) also investigated this relationship with a sample of fifty-four fifth- and sixth-grade students. Instead of using the observational approach, he used the Classroom Behaviour Rating Scale to record the classroom behaviour of students who had completed the Coopersmith Self-Esteem Inventory. A correlational analysis indicated that a significant moderate relationship existed between classroom behaviour and self-esteem. The author in his conclusion suggested that in order to modify the classroom behaviour of a student, a teacher should follow a procedure that was congruent with enhancing and maintaining the student's self-attitude (p. 276).

Based on the assumption that school children with negative self-concepts or low self-esteem are less socially and academically confident and competent than their positive self-concept peers, Yeger and Miezitis (1980) examined the classroom behaviour of pre-adolescent elementary-school children with high versus low self-concept by means of a specially designed observation instrument. Altogether twenty-eight ten- to twelve-year-old children were selected as a sample of the study. Fourteen low self-concept scorers were compared with fourteen high self-concept scorers by means of classroom observation, evaluation by their teachers, and academic achievement data. The results substantiated the general hypothesis that low self-concept students demonstrate significantly more dysfunctional classroom behaviour than high self-concept students. In addition, this

study demonstrated that pupils, who expressed negative self-concepts, show less social involvement, more inappropriate attention, and less academic proficiency.

There are two studies using different research methodology to examine the student activities and self-concept of high-school students. In order to determine the direct relationship between scores on a self-concept measure and participation in student activities, Phillips (1969) used the Osgood Semantic Differential to divide his sample of one hundred and eighty-eight subjects into high- and low- self-concept groups and then examined the number of activitites in which each student participated. Data used to test the hypothesis indicated that participation in the activity programme was significantly related to the self-concept scores for boys, but not for girls nor for the total sample. The author concluded that variables other than the activity programme were instrumental in the development of self-concept. Unfortunately, he failed to identify what these variables were.

Discontended with the findings of Phillips' study, Yarworth and Gauthier (1978) carried an ex-post field study to explore further the relationship between various aspects of student self-concept and student participation in the extra- and cocurricular activity programmes. They hypothesised that the five independent variables, namely self-concept, membership in a specific high school curriculum track, academic achievement, sexual classification, and grade classification, would be significantly correlated with each of the three dependent variables, namely, participation in the total school activity programme, participation in the school athletic activity programme, and participation in the nonathletic programme. The sample consisted of

four hundred and fifty-nine high-school students. Students' self-concept scores were assessed on the Tennessee Self-Concept Scale and the dependent variables were measured by the Student Activities Checklist. Results of this study indicated that self-concept variables as well as personal variables were significantly related to students' participation in school activities.

Using college students as subjects, Morrison and Thomas (1975) tested the hypothesis that low self-esteem subjects would tend to be more withdrawn and inhibited in social interactions than high self-esteem subjects. An initial conjecture of their study was that college students with low self-esteem would (1) say less in class, (2) contribute a smaller proportion of their thoughts to class discussion, and (3) sit farther back in the classroom than subjects with high self-esteem. Subjects of the study were seventy-eight college students, divided into high and low self-concept groups by a median split on their scores on the Coopersmith Self-Esteem Inventory and the Ziller Social Self-Esteem Scale. Information about each subject's seat number, and the thoughts contributed in discussion were obtained from information cards completed by students four times during the term. The results showed that subjects with low school self-esteem do say less, contribute a smaller proportion of their thoughts, and sit farther towards the rear of the classroom during class sessions.

Taken together, the studies outlined thus far indicate that there is a direct relationship between self-concept and the classroom behaviour of students in all age groups. To sum up, results of these studies show that students with low self-concept have a larger percentage of "off-task" behaviour and show

significantly more social withdrawal, academic difficulties, and inefficient deployment of attention than do high self-concept students. Despite findings showing the positive relationship between classroom behaviour and self-concept of the normal population, there is no way of assuming that this trend will exist in mentally-retardation studies. It is questionable whether or not the same pattern of relationships will be found in research on the self-concept of mentally-handicapped children.

F. Teacher Expectation and Classroom Interaction

From either limited information or misinformation, many teachers have a poor impression of the mentally-handicapped child. Especially, several authors have pointed out that the low achievement level of the retarded child and the label of "mentally-retarded" can have a negative effect on teacher expectancies (Gibbons, 1981; Guskin, 1978; MacMillan and Meyers, 1979). In this section, several questions relating to teacher expectancies and/or bias will be discussed. Specifically, the following questions will be examined: What is teacher expectancy? How do teacher expectancies work in the classroom? Do teachers hold negative or biased expectancies for mentally-handicapped children?

According to Brophy and Good (1974) teacher expectancies are inferences teachers make about the present and future achievement, abilities, and behaviour of their students. Expectancies can be general, pertaining to the whole class or to a subgroup of the class, or they can be specific, pertaining to individual students. Expectancies are clearly a normal part of human interactions and teaching. Unless a teacher makes some inferences about individual students, or the class as a whole,

planning a year's curriculum, ordering materials, or even selecting daily activities become impossible.

As predicted, sometimes teacher expectancies are wrong because the child may behave in a way which contrasts quite differently from the teacher's estimate. Theoretically, these changes should not cause a problem since a teacher can adjust his or her expectancies accordingly. Concern, however, has been expressed in recent years that this adjustment does not always occur. Sometimes teachers form initial expectancies that are erroneous and do not change them in light of new, disconfirming information. Instead, they interact with students as if the initial expectancies were correct and fixed. In these instances the teacher's expectancies are biased - that is, the teacher's perception of and expectancies for a student or students are not consistent with objective information (Cooper, 1979, 1983; Cooper and Good, 1983; Dusek, 1975; Good, 1980, 1981).

The concern that has been related to biased expectancies is that they may become "self-fulfilling prophecies" (Jones, 1977). This proposition, originally suggested by Merton (1957), formed the theoretical basis of the teacher-expectancy study conducted by Rosenthal and Jacobson (1968). These researchers attempted to manipulate teacher expectancies by reporting to teachers that certain students, who were actually randomly selected, should "bloom" intellectually during the year. At the end of the school year, they found that indeed the "bloomers" showed a significant gain in IQ over the control group. They attributed this gain to the effects of biased teacher expectancies.

The methodology of the Rosenthal and Jacobson study has received much criticism (Brophy and Good, 1974; Braun, 1976; Cooper, 1979; Pilling and Pringle, 1978; West and Anderson, 1976).

For example, Claiborn (1969) pointed out the differences between the experimental and control groups could largely be explained in only one first-grade class. Thorndike (1968) questioned the validity of the dependent measure for younger students. Furthermore, attempts to replicate the specific study by other researchers have been largely unsuccessful (Claiborn, 1969; Dusek and O'Connell, 1973; Fleming and Anttonen, 1971; Jose and Cody, 1971; Kester and Letchworth, 1972; Mendels and Flanders, 1973). Despite this criticism, "the influence of teachers' expectancies on student performance has been, and continues to be, a very active research area" (Good, 1980, p. 79), and a number of other studies designed to examine specific aspects of expectancy have been carried out (Good, 1981; Feldman and Prohaska, 1979; Feldman and Theiss, 1982; Wang and Weisstein, 1980; Weinstein and Middlestadt, 1979). Indeed, results of these studies have suggested reasons for the ways in which expectancy effects appear to operate.

How do teachers' expectations affect their behaviour in the classroom? In a study, Brophy and Good (1970) asked first-grade teachers to rank their students in terms of achievement and then observed the teachers' behaviour towards the high- and low-ranked students. They found significant differences in teachers' behaviour towards these two groups of students. Teachers favoured high-ranked students by demanding and reinforcing their good performance. High-ranked students received more frequent praise following a correct answer. On the other hand, low-ranked students were less likely than the high-ranked students to be praised following a correct response and received less feedback. In addition, teachers were less persistent in "staying with" low-ranked students to elicit a

correct response. Following an incorrect response, teachers would immediately move on to another student.

A different aspect of teacher behaviour relating to expectancies was examined by several studies carried out in tutoring groups (Beez, 1970; Brown, 1969; Rubovits and Maehr, 1971). In these studies, tutors in a college of education were given false psychological information about children, which they were told predicted either good or poor school performance. The results indicated that tutors tried to teach more concepts to the students for whom they had high expectations than to students for whom they had low expectations for performance, although in actuality the groups did not differ in terms of achievement potential. It was also found that tutor-student interaction was qualitatively more negative with students in the low group.

Although the original Rosenthal and Jacobson study (1968), the tutoring studies, and the original work by Brophy and Good (1970) have indicated that where expectancy effects existed, there was a fairly simplistic relationship between teacher expectancies and teacher behaviour, such as teachers attending more to high-ranked students, staying with them longer to elicit a correct response, and attempting to teach them more, other studies have not confirmed this relationship. In both a study by Silberman (1969) and follow-up studies of that work (Good and Brophy, 1972) it was found that some teachers gave more praise to, provided more response opportunities to, and stayed longer with low-achieving students than high-achieving ones. In a recent research, Stell (1978) found that students with low self-concepts whose identities were made known to their teachers would receive a significantly greater number of positive interactions from the teacher.

These discrepancies may be explained, in part, by the variability among teachers reported by Brophy and Good (1974). As a result of their observations, Brophy and Good suggested three types of teachers in terms of expectancies: proactive, reactive, and overreactive. Proactive teachers have accurate and flexible expectancies for their students and use their expectancies to plan an individualised programme for these students. These teachers maintain the initiative in structuring teacher-pupil interactions. They may initiate more contacts with low achievers to compensate for their greater need for help and for the tendency of high achievers to dominate the classroom. Reactive teachers also have accurate and flexible expectancies. They do not favour students for whom they have high expectation in teacher initiated teacher-pupil interactions. On the other hand, they do nothing to compensate for the tendency of higher achievers to dominiate the class. In these classrooms, high achievers get a higher proportion of praise for correct responses and more opportunities to respond because the reactive teachers do not stay with the student until he or she gets the correct answer, but move on. Overreactive teachers are teachers who overreact to the learning deficiencies of students. According to Brophy and Good, such teachers are likely to make overt comments that communicate their low expectation to students. Thus, Brophy and Good's (1974) typology would suggest that teachers not only behave differently towards students for whom they have different expectancies, but also that teacher behaviour may be biased towards students for whom they hold inaccurate and inflexible expectancies.

Besides, there may be other reasons of explaining why some studies have failed to demonstrate the effects of teacher

expectation on classroom behaviour. First, studies have been limited to an examination of the effects of teacher expectations on intelligence or achievement, although presumably a number of student characteristics such as self-concept, social acceptance, attitude towards school, etc., could be affected. In addition, most studies have relied on artifically created teacher expectancies by providing teachers with false information. Yoshida (1976) has suggested that teachers may rely more on their own criteria and actual contact with students in forming expectations than on contrived statements. He cited several studies (Dusek and O'Connell, 1973; Foster, Ysseldyke, and Reese, 1975; Saliva, Clark, and Ysseldyke, 1973; Yoshida and Meyers, 1975) to support this contention.

The previous discussion suggests that some teachers do behave differently towards pupils for whom they hold different expectancies and that there is reason to believe these differences in behaviour can adversely affect the students for whom negative expectancies are held. There has been much speculation as to what factors lead to different expectancies for various students. Larsen (1975) states that ethnicity, sex, social class, physical attractiveness, neatness, and language characteristics can all influence teacher expectancies. Do teachers hold negative or biased expectations of handicapped students?

Since students with handicapping conditions are generally pre-labelled and pre-certified as having some sort of deficiency, there has been concern expressed that their teachers might have inappropriately low expectations (Algozzine, Mercer, and Countermine, 1977; Gillung and Rucker, 1977; Gottlieb, 1974; MacMillan, Jones, and Aloia, 1974; Reschly and Lamprecht, 1979).

Several studies have been designed to examine the specific effect of a handicapped label on teacher expectations. In two related studies, videotapes of normal children, who were either described as normal, gifted, mentally retarded (Salvia, Clark, and Ysseldyke, 1973), or emotionally disturbed (Foster, Ysseldyke, and Reese, 1975), were shown to teacher-education students. It was found that teachers rated the same children significantly lower when they were labelled handicapped than when they were described as normal or gifted. Teachers did tend to revise their expectancies for the "handicapped" students upwards after actually watching the children engage in various tasks, but the children described as non-handicapped were still rated significantly more favourably.

In contrast to the above results, Yoshida and Meyers (1975) found no differences in predictions that teachers made for the future achievement of an elementary-school child in concept formation after watching a videotape of the child presented sometimes as a sixth grader and sometimes as an educable mentally-retarded student. In both conditions teacher revised their predictions upwards during a sequence of trials in which the student's correct responses increased, indicating a sensitivity to changes in student behaviour. Yoshida (1976) suggested that the results from this study indicate that teachers do not allow the negative expectancies they may have for labelled handicapped children to block their ability to perceive the progress and achievement those children are making.

A series of curriculum studies support the contention that the general expectancies teachers hold for the academic achievement of handicapped students may be more negative than the expectancies they hold for normal students. Fine (1967) found

that elementary special-education teachers place greater emphasis on personal and social adjustment and less emphasis on academic achievement than did regular elementary teachers. This would be consistent with a belief that handicapped students can make only limited academic progress, although most handicapped students could be expected to achieve some level of success in most academic areas. Schmidt and Nelson (1969) found the emphasis on affective rather than cognitive goals among secondary special-education teachers as well.

Meyen and Hieronymus (1970) investigated the relative importance of certain academic skills in the curriculum for EMR students and the age at which students should be expected to achieve these skills. They presented a group of special-class teachers with lists of operationally-defined skills. The teachers were asked to estimate the age at which instruction in each skill should be initiated as well as its importance in the curriculum for the EMR child. The results showed that the EMR group performed within five years of the normal students on only forty-two of two hundred and four items. The teachers suggested the initiation of instruction for most of the skills in the eleven to fourteen year old category, and EMR students achieved these skills between the ages of twelve and fifteen. The normal children, on the other hand, demonstrated success on most of the skills by the age of eight.

Heintz (1974) asked special-class teachers to estimate the ultimate reading level for described EMR students. He found that twenty percent of the teachers estimated that EMR pupils would reach no higher than a second-grade level, and only one-third of the teachers expected EMR students to reach a fifth-grade reading level or higher. Few teachers, however, expected the EMR pupils

to be reading at a level commensurate with their mental age.

Studies cited above provide some evidence that a handicapped label, especially the label of mentally-retarded, may cause teachers to form expectancies that are lower than either the observed performance (in the videotapes studies) or the theoretical mental age (in several of the curriculum studies). The curriculum studies also suggest that the negative expectancies for retarded students may be generalised expectancies, related to all retarded students, rather than specific expectancies for single students. Thus, it would seem that teacher expectancies for the handicapped, particularly the mentally retarded, may be said to be biased in the sense that they are inappropriately low.

To summarise the studies reviewed in this section, the research that has been carried out reveals that teachers do have different expectancies for different students, that at least some teachers behave differently towards students on the basis of these expectancies, and that there is reason to believe that these differences in teacher behaviour can affect student outcomes. Currently no body of research exists that links teacher expectancies to teacher behaviour and, hence, ultimately to student outcomes. As self-concept is one of the student-outcome variables, it is interesting to examine how teacher expectations influence their behaviour towards students which in turn may affect children's self-concept.

III. METHODOLOGY OF THE RESEARCH

A. General Design of the Study

Since most reviewers on self-concept studies have pointed out that the inconsistent results of the self-concept studies are due to both inadequate research designs and testing instruments (Burns, 1979; Lynch, Gergen, and Norem-Hebeisen, 1981; Thomas, 1980; Wells and Marwell, 1976; Wylie, 1974) and that very little research has been done on this topic with the educationally-subnormal children in England[1], the present study has to be more carefully planned in order to arrive at a more promising result. This study was mainly conducted in two stages. In the pilot study, instruments which could be utilised in the main study for assessing ESN(M) children's self-esteem, general anxiety, and locus-of-control were administered to all ten- to twelve-year-old ESN(M) children in one county to check their reliability and suitability for applying to mentally-retarded children. In addition, an observational system was developed and refined for the study of teacher-pupil interactions in the classroom. In the main study, the selected self-esteem inventory, the anxiety scale, and the group reading test were given to all ten- to twelve-year-old ESN(M) children in six special schools. At the same time, teachers of these children were asked to assess their children's self-esteem with the same self-esteem inventory and to evaluate their children's behaviour in schools with another behavioural rating scale. Then, twenty-nine children and four teachers were selected from four classes in two special schools as the sample for more detailed

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1 In Britain, only one study conducted by Lewis (1971) took place to examine the effects of special-school placement on the self-concept of ESN(M) boys.

observations within the main study. They were observed by this researcher in the classroom from October, 1981 to April, 1982. Both re-measuring and re-assessing children's self-esteem were carried out in the middle and at the end of the study.

B. The Pilot Study

Nowadays, there are two common approaches in self-concept studies (McGuire and McGuire, 1981, 1982). In the reactive self-concept approach, the experimenter specifies the dimension on which the subject is to define himself or herself, leaving for the subject only the reactive option of indicating where he or she would conceptualise the self as falling on the researcher-selected dimension. On the other hand, the researcher, adopting the spontaneous self-concept approach, presents a much lower profile to the respondent, using a relatively low-structured, probe (such as "Tell us about yourself") and so obtains information, not only on how the participant would conceptualise the self as falling on some preselected dimension, but also as regards the extent to which the respondent regards the various dimensions as salient when thinking about the self. As many mentally-retarded children have difficulties in verbal expression (Berry, 1976; Bloom and Lahey, 1978; Hogg and Mittler, 1980; Leeming, Swann, Coupe and Mittler, 1979; Schiefelbusch and Lloyd, 1974), it is impossible to ask them to give, say, twenty answers to the Who Are You Test (Bugental, 1964) or the Twenty Statement Test (Kuhn and McPartland, 1954). Although self reports, which are the most frequently used techniques in the reactive self-concept approach, have been criticised by some researchers (Combs, Soper, and Courson, 1963; Parker, 1966), yet "they are the more valuable instruments" (Freeman, 1950, p. 68) and "these methods (self

reports) seem to be the only kinds appropriate to this type of construct (self-concept/self esteem)" (Wylie, 1974, p. 39).

In selecting or constructing a self-concept instrument for the mentally-handicapped children, the researcher should consider several characteristics of these children such as their low intellectual ability, short attention span, limited verbal expression, and insufficient discriminating ability (Balla and Zigler, 1979; Brown, 1980; Haywood, Meyers, and Switzky, 1982; Lambert, 1980). If verbal responses are required, a short rating scale with 'yes' and 'no' responses is possibly more suitable for assessing their self-concept. To date, however, there is no particularly designed self-esteem inventory that can be applicable directly to this population[1]. Therefore, one of the prime purposes of the pilot study was to decide which one of the two frequently used self-esteem instruments, namely, the Coopersmith Self-Esteem Inventory (Form B) and the Piers-Harris Children's Self-Concept Scale (short version) was more suitable for assessing the self-esteem of preadolescent ESN(M) children.

As the other objective of the research was to examine the relationships between self-esteem and other personality constructs such as locus-of-control and general anxiety, instruments for measuring these constructs were tried out in the pilot study. Quite often, researchers in the field of mental retardation have chosen one or two measurements which were originally standardised on a normal population to examine the behaviour of retarded people, without paying attention to their reliability

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1 Lewis (1971) had modified and applied the Lipsitt verbal rating scale (1958) to adolescent educationally-subnormal boys in England. It is questionable whether the modified instrument can be applied for ESN(M) children because it is rated on a five pictorical forms which require the retarded child to have a better judgement in discriminating five different stimuli.

and validity when applying them to different populations. Consequently, some of the findings of these studies are ambiguous and questionable. So, it is advisable to justify every instrument before using or modifying it for further exploration.

After searching through the literature on observational studies (e.g., Cohen, 1976; Galton, 1978; Simon and Boyer, 1974), it was found that all published observational systems were unsuitable for the present study. Since each investigator examines different aspects of classroom life and has his own objectives for his study, "it is unlikely that a single coding scheme will be adequate for a(ll) investigator(s) studying a particular problem" (Sackett, Ruppenthal and Gluck, 1978, p. 4) except when his study is either a follow-up or a replication of previous work. In addition, the environment in which the observation takes place and the characteristics of the sample to be observed should be taken into consideration while constructing an observational system and conducting the observational study[1]. Therefore, the third purpose of the pilot study was to develop an observational system which was especially designed for the present investigation.

Because the research plan required either the adaption or development of several instruments, a fairly large pilot study was conducted. Although the try-out of the instruments and the development of an observational system were carried out simultaneously, for the sake of clarity, they are presented separately in this chapter.

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1 For a thorough discussion about the development and use of observational system, readers can consult a paper presented by Herbert and Attridge (1975), an article written by McIntyre (1980), and a book edited by Sackett (1978).

a. Justification of the Instruments for use in the Main Study

The first stage of the pilot study was to administer the selected instruments to all ten- to twelve-year-old ESN(M) children in one county. After obtaining the permission from the Director of Education and the headteachers of five special schools, the pilot study started in May, 1981 and ended in July, 1981.

1. Description of the Sample

Subjects, in the pilot study, were all ten- to twelve-year-old educationally-subnormal children drawn from five special schools located in both urban and suburban areas of north-east England. These children came from lower and middle-class family backgrounds and their IQs were reported as ranging from 50 to 80, as determined by qualified psychologists. Since the study was conducted in several sessions, the numbers of subjects in each session varied and these are presented in Table 1.

Table 1 Number of children participating in the pilot study (S.E.I. = Coopersmith Self-Esteem Inventory; C.S.C.S. = Piers-Harris Children's Self-Concept Scale; Other instruments = Children's Manifest Anxiety Scale and the Nowicki-Strickland Locus of Control Scale for children)

	Boys			Girls			
	10	11	12	10	11	12	Total
S.E.I. (ist test)	52	56	50	30	23	23	234
S.E.I. (retest)	49	55	49	30	23	23	229
C.S.C.S. (1st test)	52	55	50	29	23	24	233
C.S.C.S. (retest)	47	53	50	29	22	23	224
Other instruments	40	46	29	25	20	14	174

2. Description of Instruments Employed[1]

In assessing the self-esteem of ESN(M) children, two most frequently used self-esteem inventories were selected and used in this study. The first instrument was the shorter of two forms (Form B) of the Coopersmith Self-Esteem Inventory (1967). It was developed on the basis of an item analysis of Form A, for use with individuals above age eight. It consists of twenty-five items to which the subjects answer by 'yes' or 'no' responses. Since Form B was based on an item analysis of Form A, it correlates .86 with the full version (Argyle and Lee, 1972). No reliability information is reported for Form B of the Self-Esteem Inventory (S.E.I.) which, due to its shorter length, is assumed to be somewhat less stable than Form A.

The second instrument used for assessing the self-esteem of ESN(M) children was the short form of the Piers-Harris Children's Self-Concept Scale (Bagley and Mallick, 1978). This form was developed after a principal-components analysis of data from the Piers-Harris Self-Concept Scale (1964) carried out on one hundred and sixty-five twelve-year-old English subjects. As recommended by the authors, this form can be used with both sexes. No reliability and validity information was reported for this shorter version, but the corrected odd-even reliability coefficients of .90 (age 11) and .87 (age 15), test-retest reliability of .77 (age 10 after 4 months), and Kuder-Richardson 21 coefficients ranging from .78 to .93 were reported for the long form. Also, studies by Cox (1966) and Mayer (1966) had

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1 Samples of the instruments used in the pilot study are presented in Appendices 1a, 1b, 1c and 1d.

found correlations of .64 and .68 respectively, between the Piers-Harris Scale and other self-concept measures.

The instrument for measuring children's general anxiety was a short form of the Children's Manifest Anxiety Scale (Levy, 1958). This instrument comprises ten items which were selected from the Children's Form of the Manifest Anxiety Scale (Castaneda, McCandles and Palermo, 1956) after standardisation and item analysis. According to the author, the short-form scores did quite a respectable job of predicting the full-form scores and the correlations ranged in value from .84 to .95 for nine- to eleven-year-old children. Since all ten items showed no significant differences for either grade or sex, it was recommended that it could be used for both sexes and children aged nine to eleven years old.

Locus-of-control orientation was measured by the short-form of the Nowicki-Strickland Locus of Control Scale for Children (Nowicki and Strickland, 1973). This scale consists of twenty questions to which the subjects respond either "yes" or "no". It was developed on the basis of the item-total correlations and item variance estimates for each item of the original forty item scale. No reliability and validity information was reported for the short version, but, according to the developers, it "should be a usable, reliable, and quick measure of a generalised locus of control of reinforcement for different-aged children" (Nowicki and Strickland, 1973, p. 153). For the complete scale, it was reported that the internal consistencies via the split-half method, corrected by the Spearman-Brown formula, were .63 (age 8 to 11) and .68 (age 11-13). Test-retest reliabilities six weeks apart were .63 (age 8) and .66 (age 12). Correlations with the Intellectual Achievement

Responsibility Questionnaire (Crandall, Katkovsky, and Crandall, 1965) were not significant with I^- but significant with I^+ for 182 eight-year-old and 171 twelve-year-old children. Also, a correlation of .41 with the Bialer-Cromwell Scale (Bialer, 1961) was found with a sample of twenty-nine children aged from nine to twelve years.

3. Data Collection

As most mentally-retarded children had short attention span, a battery of instruments was impossible for them to manage within a single period. Therefore, it was decided to administer the four instruments in two stages. The first stage was carried out in May and June of 1981 in which the two selected self-esteem inventories were given to all ten- to twelve-year-old children in five special schools. The period between test and retest was four weeks apart. The Children's Manifest Anxiety Scale and the short-form of the Nowicki-Strickland Locus of Control Scale for Children were administered during the first two weeks of July, 1981. In every test session, the class teachers of these children read each item of the instruments aloud twice, asking each child to circle "yes" or "no" on the test sheet. The oral presentation was chosen to make all items more understandable and easier to follow.

4. Results

Internal Consistency and Reliability Initially, children's responses to the four instruments were examined for homogeneity and reliability. To judge the homogeneity of the instruments, the Kuder-Richardson Formula 20 (Kuder and Richardson, 1937), which assumes equal difficulty of items, was employed with results as shown in Table 2.

Table 2 The Kuder-Richardson indices, the split-half reliabilities, and the test-retest coefficients of the four selected instruments rectified in the pilot study[1] (S.E.I. = Coopersmith Self-Esteem Inventory; C.S.C.S. = Piers-Harris Children's Self-Concept Scale; C.M.A.S. = Children's Manifest Anxiety Scale; C.N.S.-IE = Nowicki-Strickland Locus of Control Scale for children)

Instrument	Kuder-Richardson index	Split-half reliability	Test-retest coefficient
S.E.I. (1st test)	.438	.415	.535
S.E.I. (retest)	.638	.634	
C.S.C.S. (1st test)	.851	.840	.729
C.S.C.S. (retest)	.870	.845	
C.M.A.S.	.695	.504	--
C.N.S.-IE	.595	.397	--

The Kuder-Richardson indices indicated that, on the whole, the Piers-Harris Scale (C.S.C.S.) showed higher internal consistency than the Self-Esteem Inventory (S.E.I.) in both test sessions. Also, both the anxiety scale (C.M.A.S.) and the locus-of-control scale (C.N.S.-IE) showed reasonably high internal consistency. As a check, the Spearman-Brown odd-even formula was applied to the results for the entire sample, with the resulting coefficients of .42 and .63 for the S.E.I. in two test sessions, .84 and .85 for the C.S.C.S. in two test periods, .50 for the anxiety scale, and .40 for the locus-of-control scale.

A retest of the two selected self-esteem inventories on all the sample four weeks later resulted in the coefficients of .54 and .73 as shown in Table 2. Since the test-retest coefficient of the Piers-Harris Scale was higher than that of the Self-Esteem Inventory, this indicated that children's self-esteem scores on

1 Examples for the calculation of the Kuder-Richardson index, split-half reliability, and test-retest coefficient are demonstrated in the Appendices 2a, 2b, and 2c.

the Piers-Harris Children's Self-Concept Scale were more stable over time.

In addition to the calculation of the K-R 20 indices, the split-half reliabilities and the test-retest coefficients of the four instruments for the total sample, the data were further analysed to estimate the homogeneity and stability of these instruments for both boys and girls and for the three age-groups. Table 3 and Table 4 show that the K-R 20 indices, the odd-even coefficients and the test-retest reliabilities of the Piers-Harris Scale were higher than those of the Self-Esteem Inventory both in sex comparison and in age-group comparison. Particularly, most of the K-R 20 indices and the split-half coefficients in the retest sessions were greater than those on

Table 3 The Kuder-Richardson indices, the split-half reliabilities, and the test-retest coefficients of the four selected instruments calculated from the scores of boys and girls (a = first test; b = retest; S.E.I. = Coopersmith Self-Esteem Inventory; C.S.C.S. = Piers-Harris Children's Self-Concept Scale; C.M.A.S. = Children's Manifest Anxiety Scale; C.N.S.-IE = Nowicki-Strickland Locus of Control Scale for Children)

Instrument	Sex	Kuder-Richardson index		Split-half reliability		Test-retest coefficient
		a	b	a	b	
S.E.I.	Boy	.389	.638	.270	.609	.549
	Girl	.547	.640	.623	.688	.513
C.S.C.S.	Boy	.856	.876	.853	.840	.748
	Girl	.843	.860	.814	.858	.690
C.M.A.S.	Boy	.743	--	.549	--	--
	Girl	.562	--	.371	--	--
C.N.S.-IE	Boy	.645	--	.425	--	--
	Girl	.466	--	.329	--	--

the first-test sessions. In sex comparison, the K-R 20 indices and the odd-even coefficients of both anxiety scale and the locus-of-control scale calculated from the scores obtained by boys were higher than those calculated from the scores obtained by girls. Furthermore, the K-R 20 index and the odd-even coefficient of the ten-year-old group were comparatively larger than those of the eleven- and twelve-year-old groups.

Table 4 The Kuder-Richardson indices, the split-half reliabilities, and the test-retest coefficients of the four selected instruments calculated from the scores of three different age-groups (a = first test; b = retest; S.E.I. = Coopersmith Self-Esteem Inventory; C.S.C.S. = Piers-Harris Children's Self-Concept Scale; C.M.A.S. = Children's Manifest Anxiety Scale; C.N.S.-IE = Nowicki-Strickland Locus of Control Scale for Children)

Instrument	Age	Kuder-Richardson index		Split-half reliability		Test-retest coefficient
		a	b	a	b	
	10	.549	.596	.507	.590	.491
S.E.I.	11	.312	.623	.253	.564	.496
	12	.395	.646	.363	.678	.578
	10	.860	.872	.853	.895	.790
C.S.C.S.	11	.851	.818	.817	.794	.648
	12	.840	.879	.856	.826	.725
	10	.784	--	.614	--	--
C.M.A.S.	11	.671	--	.366	--	--
	12	.431	--	.526	--	--
	10	.748	--	.626	--	--
C.N.S.-IE	11	.231	--	-.268	--	--
	12	.541	--	.493	--	--

Sex Differences In order to find out whether the instruments could be applied to both sexes, t-values were calculated to compare the total mean scores obtained by boys and girls in the

four selected instruments. As shown in Table 5, no significant differences were found between boys and girls in responding to the four selected instruments. Relying upon the summation scores, however, would distort the findings. As recommended by Wylie (1979, p. 272), item analyses, done separately by sex, was carried

Table 5 Means, standard deviations (S.D.), and t-values of the four selected instruments computed from the scores of boys and girls (S.E.I. = Coopersmith Self-Esteem Inventory; C.S.C.S. = Piers-Harris Children's Self-Concept Scale; C.M.A.S. = Children's Manifest Anxiety Scale; C.N.S.-IE = Nowicki-Strickland Locus of Control Scale for Children)

Instrument	Sex	N	Mean	S.D.	t-value	Significant level
S.E.I. (1st test)	Boy	158	13.18	3.01	.34	N.S.
	Girl	76	13.03	3.43		
S.E.I. (retest)	Boy	153	13.93	3.88	.29	N.S.
	Girl	76	14.09	3.87		
C.S.C.S. (1st test)	Boy	157	13.83	7.05	.58	N.S.
	Girl	76	14.39	6.89		
C.S.C.S. (retest)	Boy	150	13.26	7.53	.43	N.S.
	Girl	74	12.82	7.01		
C.M.A.S.	Boy	115	4.06	2.62	.66	N.S.
	Girl	59	4.31	2.12		
C.N.S.-IE	Boy	115	9.97	3.45	.05	N.S.
	Girl	59	9.95	2.84		

out to explore sex differences in the retests of the two self-esteem inventories, the children's anxiety scale, and the locus-of-control scale. The results indicated that there was no difference between boys and girls in responding to each item of the Self-Esteem Inventory (Table 6 and Figure 1). The t-test, however, showed that, in the retest session of the Piers-Harris Self-Concept Scale, girls had significantly higher mean scores

Table 6 Differences in mean scores ($\bar{x}$) between boys and girls in responding to each item of the Self-Esteem Inventory in the retest session (σ^2 = variance)

Item No.	Boys (N = 153) $\bar{x}$	Boys (N = 153) σ^2	Girls (N = 76) $\bar{x}$	Girls (N = 76) σ^2	t-value	Significant level
1	0.47	0.25	0.45	0.25	0.33	N.S.
2	0.58	0.24	0.51	0.25	0.89	N.S.
3	0.42	0.24	0.43	0.25	0.23	N.S.
4	0.67	0.22	0.61	0.24	0.91	N.S.
5	0.54	0.25	0.51	0.25	0.42	N.S.
6	0.81	0.15	0.79	0.17	0.37	N.S.
7	0.47	0.25	0.43	0.25	0.52	N.S.
8	0.65	0.23	0.72	0.20	1.09	N.S.
9	0.69	0.21	0.66	0.23	0.53	N.S.
10	0.53	0.25	0.58	0.24	0.71	N.S.
11	0.56	0.25	0.51	0.25	0.61	N.S.
12	0.53	0.25	0.55	0.25	0.33	N.S.
13	0.50	0.25	0.51	0.25	0.24	N.S.
14	0.63	0.23	0.70	0.21	0.97	N.S.
15	0.52	0.25	0.51	0.25	0.04	N.S.
16	0.57	0.25	0.57	0.25	0.04	N.S.
17	0.59	0.24	0.57	0.25	0.32	N.S.
18	0.39	0.24	0.38	0.24	0.16	N.S.
19	0.67	0.22	0.72	0.20	0.79	N.S.
20	0.76	0.18	0.83	0.14	1.28	N.S.
21	0.53	0.25	0.54	0.25	0.14	N.S.
22	0.66	0.22	0.64	0.23	0.23	N.S.
23	0.48	0.25	0.58	0.24	1.37	N.S.
24	0.37	0.23	0.30	0.21	1.07	N.S.
25	0.35	0.23	0.47	0.25	1.85	N.S.

on item 8 (I give up easily) and item 13 (I am an important member of my class) whereas boys obtained significantly higher mean scores on item 23 (I am often mean to other people), item 29 (I get into lots of fight), item 31 (My family is disappointed in me), item 33 (When I try to make something, everything seems to go wrong), and item 35 (I forget what I learn) (Table 7 and Figure 2).

Figure 1 Differences in mean scores between boys and girls in responding to each item of the Self-Esteem Inventory in the re-test session

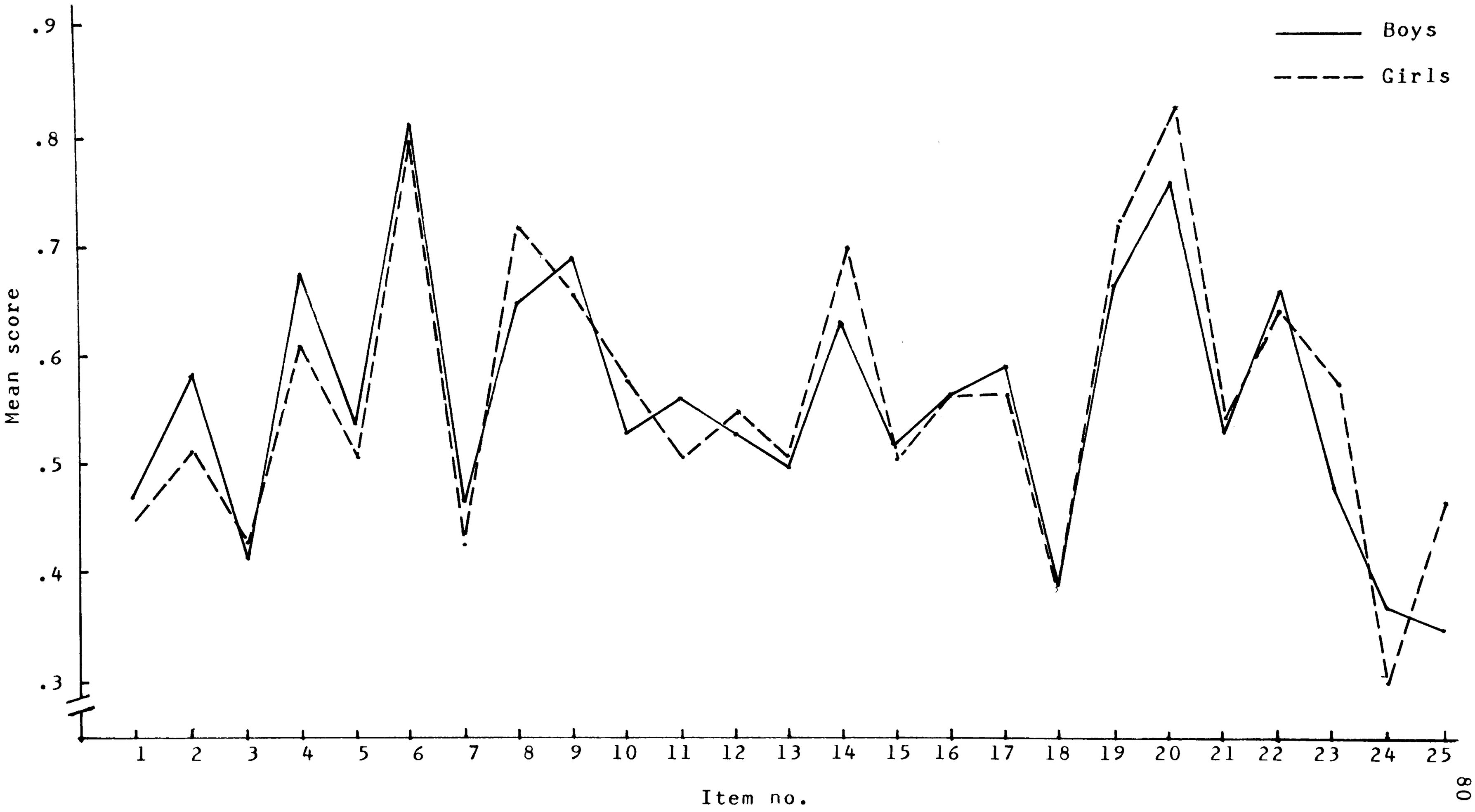


Table 7 Differences in mean scores ($\bar{x}$) between boys and girls in responding to each item of the Piers-Harris Children's Self-Concept Scale in the retest session (σ^2 = variance)

Item No.	Boys (N = 150) $\bar{x}$	Boys (N = 150) σ^2	Girls (N = 74) $\bar{x}$	Girls (N = 74) σ^2	t-value	Significant level
1	0.13	0.12	0.11	0.10	0.55	N.S.
2	0.40	0.24	0.34	0.22	0.91	N.S.
3	0.17	0.14	0.14	0.12	0.76	N.S.
4	0.37	0.23	0.45	0.25	1.04	N.S.
5	0.47	0.25	0.34	0.22	1.88	N.S.
6	0.25	0.19	0.19	0.15	1.00	N.S.
7	0.22	0.17	0.24	0.18	0.39	N.S.
8	0.32	0.22	0.47	0.25	2.20	$p<0.05$
9	0.36	0.23	0.35	0.23	0.13	N.S.
10	0.24	0.18	0.16	0.14	1.41	N.S.
11	0.29	0.21	0.26	0.19	0.58	N.S.
12	0.37	0.23	0.30	0.21	1.05	N.S.
13	0.36	0.23	0.53	0.25	2.38	$p<0.05$
14	0.35	0.23	0.45	0.25	1.33	N.S.
15	0.35	0.23	0.43	0.25	1.23	N.S.
16	0.33	0.22	0.30	0.21	0.45	N.S.
17	0.19	0.15	0.28	0.20	1.58	N.S.
18	0.43	0.24	0.36	0.23	0.90	N.S.
19	0.46	0.25	0.49	0.25	0.37	N.S.
20	0.36	0.23	0.47	0.25	1.61	N.S.
21	0.24	0.18	0.34	0.22	1.50	N.S.
22	0.41	0.24	0.34	0.22	1.01	N.S.
23	0.35	0.23	0.14	0.12	3.92	$p<0.001$
24	0.33	0.22	0.35	0.23	0.37	N.S.
25	0.41	0.24	0.47	0.25	0.85	N.S.
26	0.24	0.18	0.26	0.19	0.27	N.S.
27	0.14	0.12	0.16	0.14	0.43	N.S.
28	0.26	0.19	0.22	0.17	0.73	N.S.
29	0.45	0.25	0.30	0.21	2.33	$p<0.05$
30	0.55	0.25	0.61	0.24	0.88	N.S.
31	0.36	0.23	0.23	0.18	2.08	$p<0.05$
32	0.23	0.18	0.27	0.20	0.60	N.S.
33	0.49	0.25	0.35	0.23	2.06	$p<0.05$
34	0.28	0.20	0.22	0.17	1.06	N.S.
35	0.45	0.25	0.28	0.20	2.46	$p<0.05$
36	0.65	0.23	0.64	0.23	0.17	N.S.
37	0.36	0.23	0.42	0.24	0.85	N.S.
38	0.30	0.21	0.26	0.19	0.68	N.S.
39	0.35	0.23	0.34	0.22	0.13	N.S.

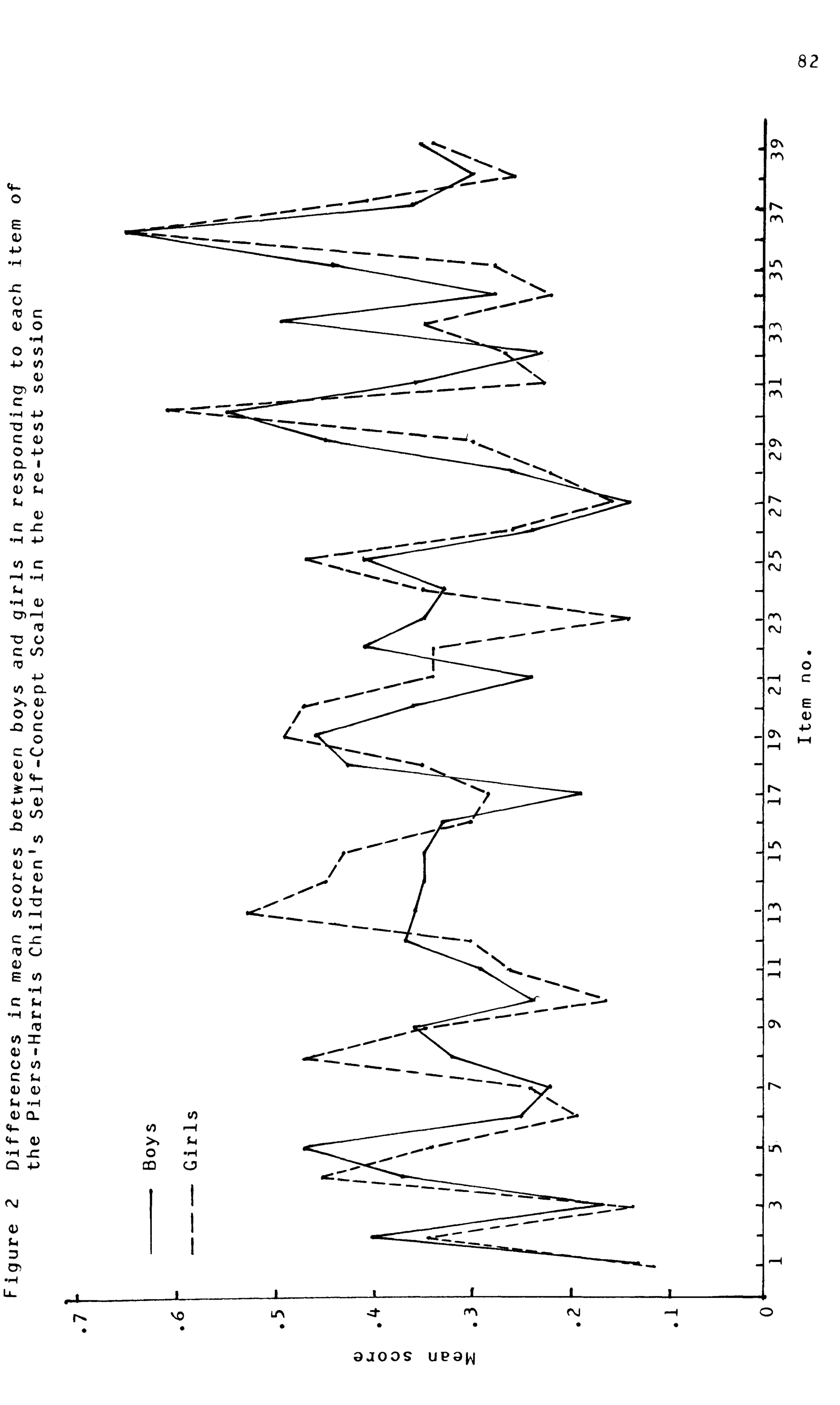


Figure 2 Differences in mean scores between boys and girls in responding to each item of the Piers-Harris Children's Self-Concept Scale in the re-test session

In responding to the items of the Children's Manifest Anxiety Scale, the t-values revealed that girls were significantly more worried than boys about what was going to happen (item 7) (Table 8 and Figure 3). The t-values also indicated that in the Nowicki-Strickland Locus of Control Scale girls had significantly less belief than boys that wishing could make good things happen (item 5) and that planning ahead could make things turn out better (item 19). On the other hand, girls had a stronger belief than boys that there was little they could do to stop a child hitting them (item 11) (Table 9 and Figure 4).

Table 8 Differences in mean scores between boys and girls in responding to each item of the Children's Manifest Anxiety Scale in the pilot study ($\bar{x}$ = mean score; σ^2 = variance)

Item No.	Boys (N = 115) $\bar{x}$	Boys (N = 115) σ^2	Girls (N = 59) $\bar{x}$	Girls (N = 59) σ^2	t-value	Significant level
1	0.36	0.23	0.36	0.23	0.01	N.S.
2	0.43	0.24	0.49	0.25	0.82	N.S.
3	0.28	0.20	0.25	0.19	0.34	N.S.
4	0.49	0.25	0.59	0.24	1.34	N.S.
5	0.41	0.24	0.34	0.22	0.91	N.S.
6	0.23	0.18	0.27	0.20	0.52	N.S.
7	0.37	0.23	0.58	0.24	2.58	$p<0.01$
8	0.36	0.23	0.31	0.21	0.69	N.S.
9	0.47	0.25	0.41	0.24	0.79	N.S.
10	0.67	0.22	0.71	0.21	0.58	N.S.

Figure 3 Differences in mean scores between boys and girls in responding to each item of the Children's Manifest Anxiety Scale in the pilot study

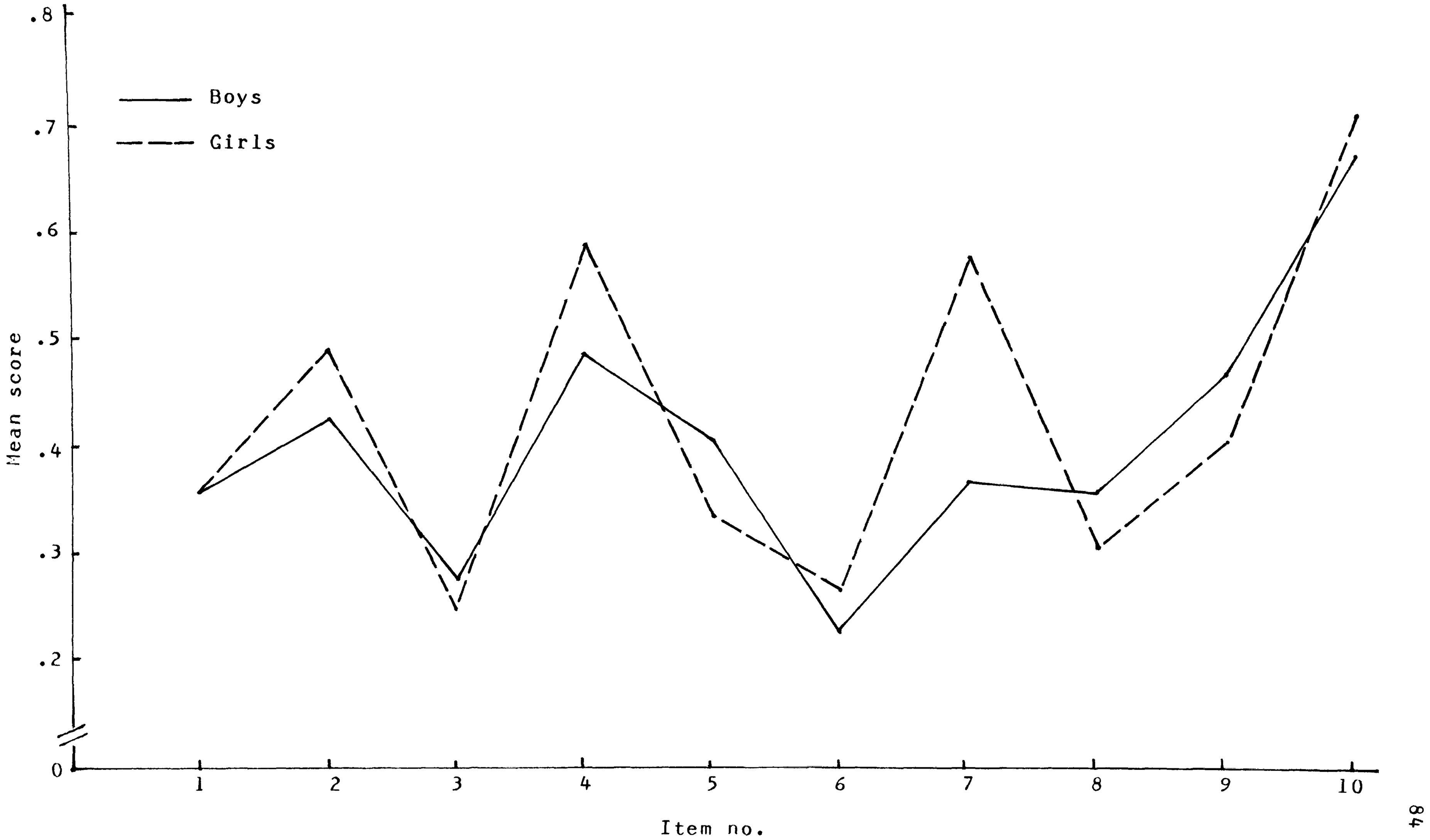
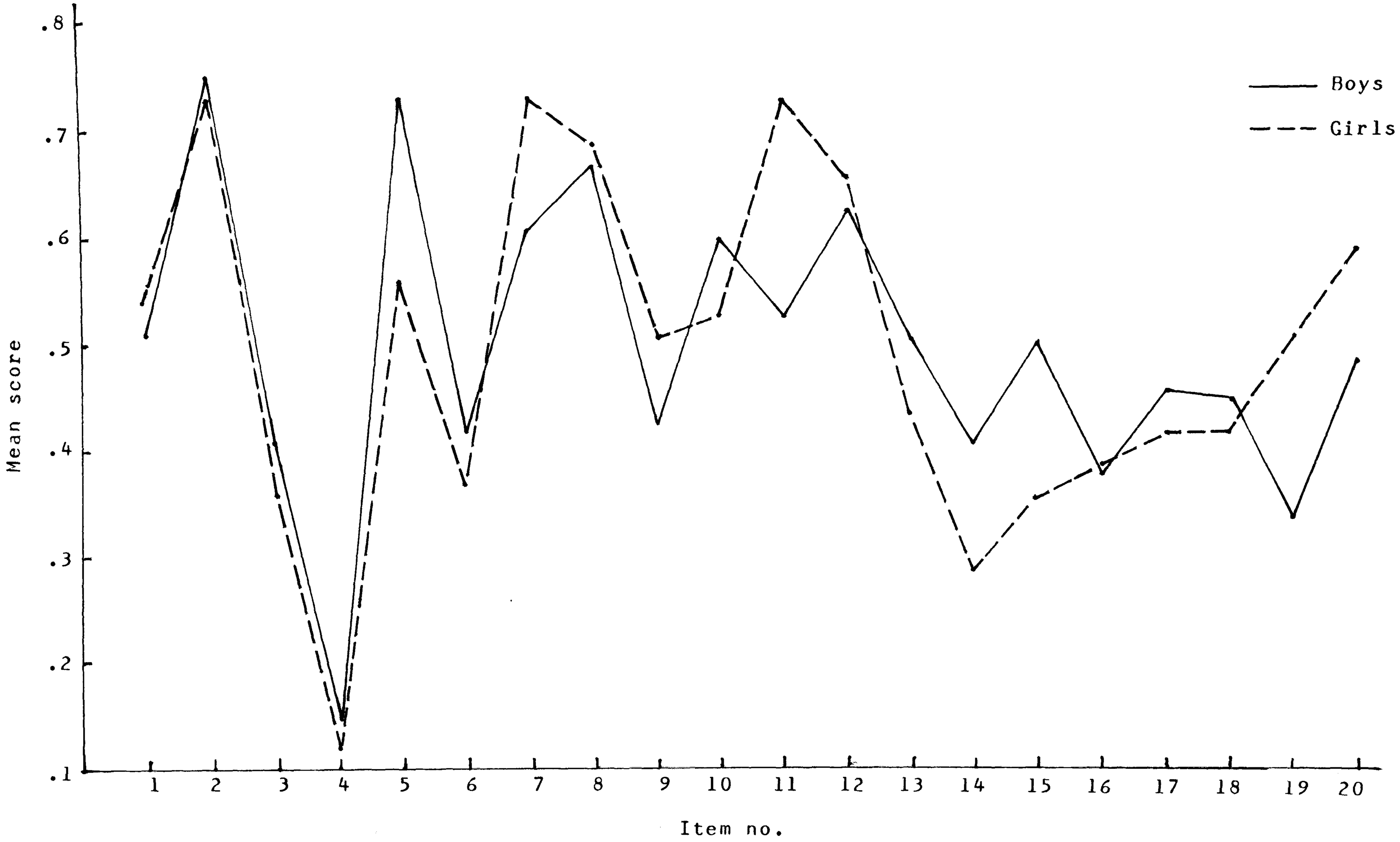


Table 9 Differences in mean scores ($\bar{x}$) between boys and girls in responding to each item of the Nowicki-Strickland Locus of Control Scale for Children in the pilot study (σ^2 = variance)

Item No.	Boys (N = 115) $\bar{x}$	Boys (N = 115) σ^2	Girls (N = 59) $\bar{x}$	Girls (N = 59) σ^2	t-value	Significant level
1	0.51	0.25	0.54	0.25	0.37	N.S.
2	0.75	0.19	0.73	0.20	0.27	N.S.
3	0.41	0.24	0.36	0.23	0.68	N.S.
4	0.15	0.13	0.12	0.10	0.55	N.S.
5	0.73	0.20	0.56	0.25	2.23	$p < 0.05$
6	0.42	0.24	0.37	0.23	0.57	N.S.
7	0.61	0.24	0.73	0.20	1.63	N.S.
8	0.67	0.22	0.69	0.21	0.34	N.S.
9	0.43	0.24	0.51	0.25	1.03	N.S.
10	0.60	0.24	0.53	0.25	0.94	N.S.
11	0.53	0.25	0.73	0.20	2.67	$p < 0.01$
12	0.63	0.23	0.66	0.22	0.34	N.S.
13	0.51	0.25	0.44	0.25	0.91	N.S.
14	0.41	0.24	0.29	0.21	1.61	N.S.
15	0.50	0.25	0.36	0.23	1.80	N.S.
16	0.38	0.24	0.39	0.24	0.09	N.S.
17	0.46	0.25	0.42	0.24	0.47	N.S.
18	0.45	0.25	0.42	0.24	0.36	N.S.
19	0.34	0.22	0.51	0.25	2.15	$p < 0.05$
20	0.49	0.25	0.59	0.24	1.34	N.S.

Figure 4 Differences in mean scores between boys and girls in responding to each item of the Nowicki-Strickland Locus of Control Scale for Children in the pilot study



Age Differences Means, standard deviations, and F-ratios were computed from the scores of the three age-groups in responding to the four selected instruments. As depicted in Table 10, children of different ages responded differently to the Self-Esteem Inventory (S.E.I.) in both test sessions. This trend, however, was not revealed in their responses to the Piers-Harris Children's Self-Concept Scale (C.S.C.S.), the Children's Manifest Anxiety Scale (C.M.A.S.), and the Nowicki-Strickland Locus of Control Scale (C.N.S.-IE). In both test sessions, eleven-year-old children had the highest mean scores and the ten-year-old children had the lowest mean scores in the Self-Esteem Inventory.

Table 10 Means, standard deviations (S.D.), and F-ratios of the four selected instruments computed from the scores of three age-groups

Instrument	Age	N	Mean	S.D.	F-ratio	Significant level
S.E.I. (1st test)	10	82	12.52	3.45	3.13	p<0.05
	11	79	13.76	2.83		
	12	73	13.14	2.99		
S.E.I. (retest)	10	79	12.72	3.72	6.97	p<0.001
	11	78	14.86	3.74		
	12	72	14.43	3.84		
C.S.C.S. (1st test)	10	81	14.83	7.26	0.83	N.S.
	11	78	13.64	6.94		
	12	74	13.53	6.68		
C.S.C.S. (retest)	10	76	14.36	8.10	1.64	N.S.
	11	75	12.53	6.30		
	12	73	12.43	7.41		
C.M.A.S.	10	65	4.28	2.80	1.94	N.S.
	11	66	4.42	2.41		
	12	43	3.51	1.83		
C.N.S.-IE	10	65	10.12	4.01	1.39	N.S.
	11	66	10.27	2.42		
	12	43	9.26	2.98		

Using analysis of variance, the F-ratios showed that, in the first test session of the Self-Esteem Inventory (Table 11 and Figure 5), children of different ages responded differently on items 15, 19, 21, 22 and 24. All ten-year-old children in the sample had the lowest mean scores on item 15 (I have a low opinion of myself), item 19 (If I have something to say, I usually say it), item 21 (Most people are better liked than I am), and item 22 (I usually feel as if my parents are pushing me). On the other hand, they had the highest mean score on item 24 (Things usually don't bother me). In the retest session, children of three different age groups had various responses to items 4, 10, 15, 18, 19, 21 and 22 (Table 12 and Figure 6). Again, ten-year-old children had the lowest mean scores on items 4, 10, 15, 19, 21 and 22, except item 18 (I'm not as nice looking as most people).

Table 11 Differences in mean scores ($\bar{x}$) among the three age-groups in responding to each item of the Self-Esteem Inventory in the first test session

Item No.	Age 12 (N = 73)	Age 11 (N = 79)	Age 10 (N = 82)	F-ratio	Significant level
1	0.47	0.47	0.39	0.63	N.S.
2	0.67	0.58	0.41	2.38	N.S.
3	0.37	0.42	0.30	1.11	N.S.
4	0.70	0.61	0.62	0.78	N.S.
5	0.34	0.37	0.40	0.30	N.S.
6	0.78	0.84	0.76	0.79	N.S.
7	0.33	0.28	0.40	1.40	N.S.
8	0.74	0.76	0.73	0.08	N.S.
9	0.67	0.67	0.73	0.46	N.S.
10	0.52	0.46	0.44	0.56	N.S.
11	0.41	0.41	0.28	1.88	N.S.
12	0.49	0.48	0.41	0.57	N.S.
13	0.42	0.51	0.49	0.55	N.S.
14	0.67	0.67	0.73	0.46	N.S.
15	0.42	0.56	0.34	3.92	$p<0.05$
16	0.55	0.58	0.54	0.18	N.S.
17	0.36	0.35	0.43	0.57	N.S.
18	0.44	0.47	0.38	0.69	N.S.
19	0.86	0.76	0.70	3.14	$p<0.05$
20	0.86	0.85	0.82	0.32	N.S.
21	0.52	0.65	0.38	6.00	$p<0.01$
22	0.60	0.67	0.44	4.80	$p<0.01$
23	0.45	0.48	0.38	0.92	N.S.
24	0.37	0.44	0.61	4.89	$p<0.01$
25	0.32	0.44	0.41	1.42	N.S.

Figure 5 Differences in mean scores among the three age-groups in responding to each item of the Self-Esteem Inventory in the first test session

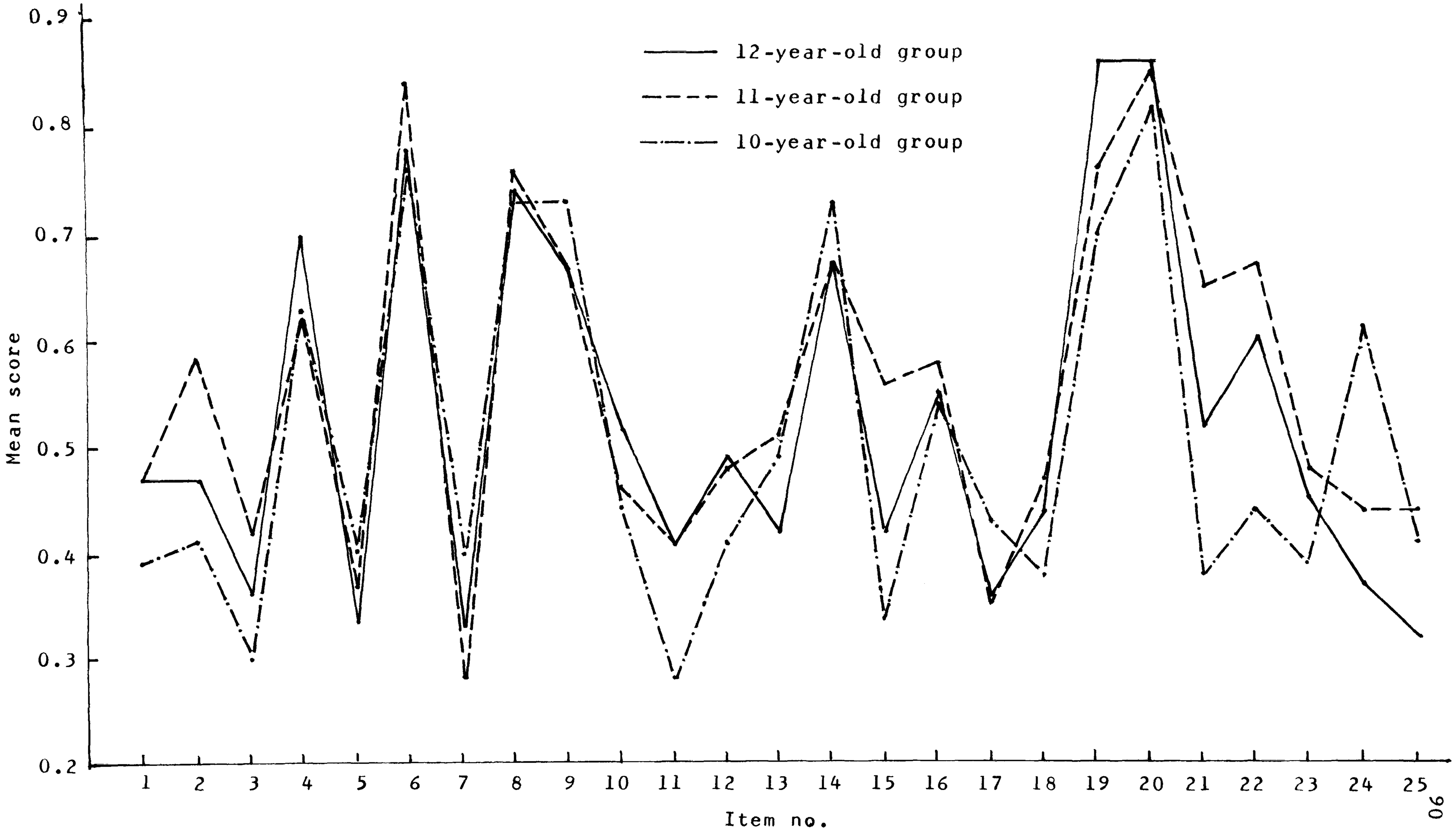
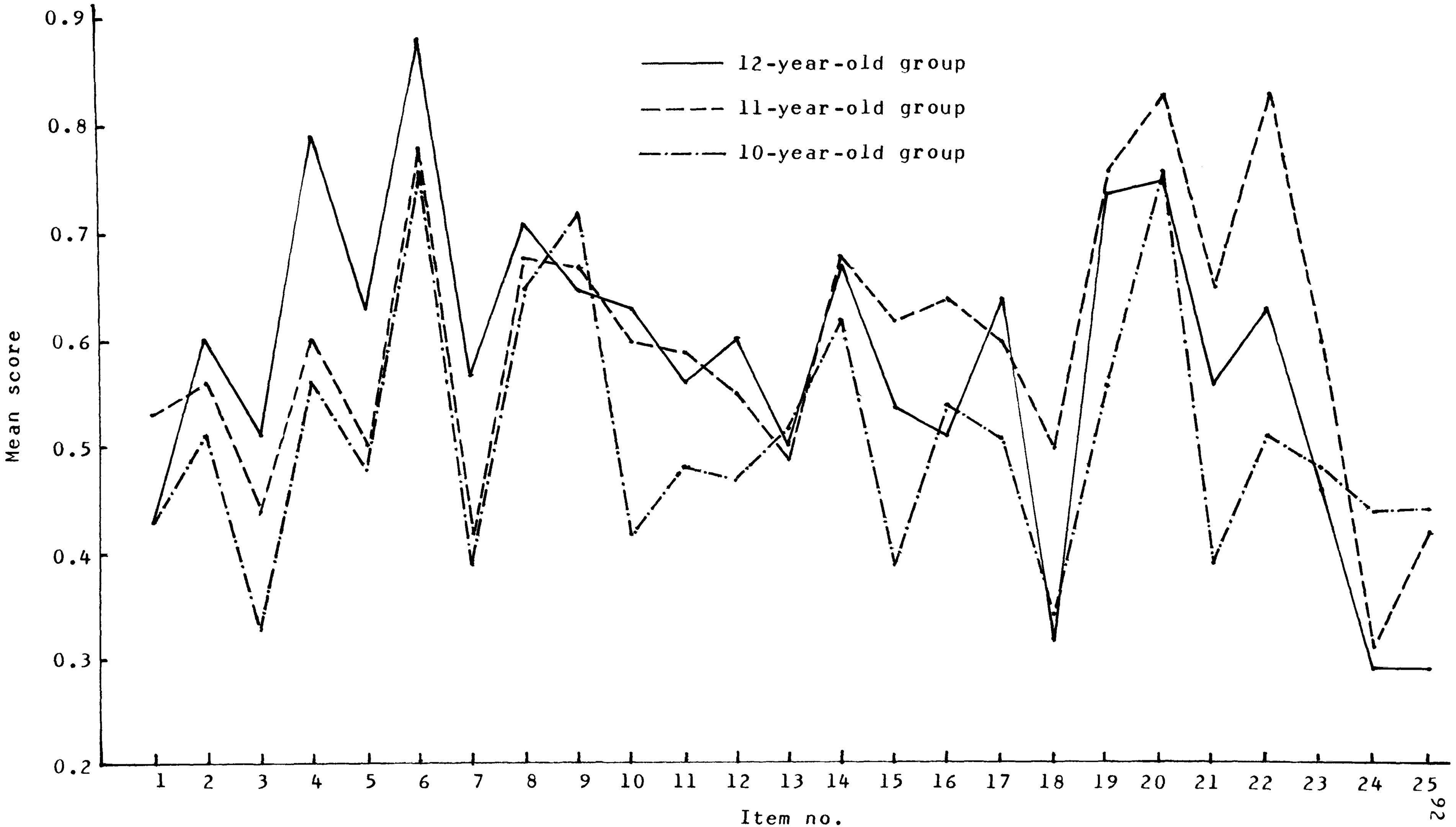


Table 12 Differences in mean scores ($\bar{x}$) among the three age-groups in responding to each item of the Self-Esteem Inventory in the retest session

Item No.	Age 12 (N = 72)	Age 11 (N = 78)	Age 10 (N = 79)	F-ratio	Significant level
1	0.43	0.53	0.43	0.93	N.S.
2	0.60	0.56	0.51	0.65	N.S.
3	0.51	0.44	0.33	2.70	N.S.
4	0.79	0.60	0.56	5.20	$p<0.01$
5	0.63	0.50	0.48	1.83	N.S.
6	0.88	0.78	0.76	1.77	N.S.
7	0.57	0.42	0.39	2.71	N.S.
8	0.71	0.68	0.65	0.34	N.S.
9	0.65	0.67	0.72	0.46	N.S.
10	0.63	0.60	0.42	4.12	$p<0.05$
11	0.56	0.59	0.48	0.97	N.S.
12	0.60	0.55	0.47	1.30	N.S.
13	0.50	0.49	0.52	0.08	N.S.
14	0.67	0.68	0.62	0.33	N.S.
15	0.54	0.62	0.39	4.15	$p<0.05$
16	0.51	0.64	0.54	1.37	N.S.
17	0.64	0.60	0.51	1.47	N.S.
18	0.32	0.50	0.34	3.17	$p<0.05$
19	0.74	0.76	0.58	3.36	$p<0.05$
20	0.75	0.83	0.76	0.93	N.S.
21	0.56	0.65	0.39	5.70	$p<0.01$
22	0.63	0.83	0.51	10.22	$p<0.001$
23	0.46	0.60	0.48	1.85	N.S.
24	0.29	0.31	0.44	2.37	N.S.
25	0.29	0.42	0.44	2.12	N.S.

Figure 6 Differences in mean scores among the three age-groups in responding to each item of the Self-Esteem Inventory in the retest session



Item Analysis of the Piers-Harris Children's Self-Concept Scale and the Children's Manifest Anxiety Scale Since the retest of the Piers-Harris Children's Self-Concept Scale showed higher internal consistency and greater test-retest reliability, data of the retest were used for item analysis to determine whether all items in the scale significantly discriminated between the high and low groups at the .05 level or better. Using the high-low 27 per cent method (Cureton, 1957; Kelly, 1939; Ross and Weitzman, 1964), indices of difficulty, discrimination and validity (point biserial-r) were computed.[1] Table 13 reveals that two items in the Piers-Harris Self-Concept Scale had both low discriminating indices (below .19) and non-significant validity indices (below .195). As recommended by Ebel (1979, p. 267) and Garrett (1966, p. 368), these two items - item 13 (I am an important member of my class) and item 15 (I can give a good report in front of my class) - should be excluded in future use. As a check, the t-test was applied to the means of two groups in each item. The result also confirmed both item 13 and item 15 were statistically non-significant (Table 14 and Figure 7).

The same procedure was also applied to the data of the two groups in the anxiety scale. As indicated in Table 15 and Table 16, all items of the anxiety scale showed reasonably high discriminating powers and the t-values revealed that the upper 27 per cent group did response to all items of the anxiety scale differently from the lower 27 per cent groups (Figure 8).

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1 Examples for the computation of the indices of item difficulty, item discrimination and item validity are shown in the Appendix 2d.

Table 13 The difficulty indices, the discriminating indices, and the validity indices of each item of the Piers-Harris Children's Self-Concept Scale

Item No.	Difficulty Index	Discriminating Index	Validity Index
1	.15	.27	.41
2	.45	.30	.32
3	.16	.28	.38
4	.43	.58	.62
5	.43	.57	.61
6	.28	.57	.69
7	.21	.22	.31
8	.44	.38	.44
9	.37	.63	.68
10	.19	.35	.47
11	.33	.55	.63
12	.33	.57	.63
13	.41	.08	.12
14	.44	.52	.59
15	.28	.13	.15
16	.35	.57	.66
17	.21	.22	.29
18	.41	.58	.67
19	.49	.65	.69
20	.47	.50	.53
21	.28	.30	.27
22	.43	.68	.71
23	.31	.55	.63
24	.31	.35	.33
25	.48	.58	.60
26	.33	.38	.49
27	.14	.28	.42
28	.23	.37	.44
29	.44	.58	.64
30	.56	.55	.59
31	.41	.55	.61
32	.18	.30	.37
33	.48	.57	.61
34	.33	.55	.66
35	.43	.77	.78
36	.71	.35	.45
37	.42	.53	.59
38	.38	.68	.72
39	.42	.67	.62

Table 14 Differences in mean scores ($\bar{x}$) between the upper 27% group and the lower 27% group in responding to each item of the Piers-Harris Children's Self-Concept Scale (σ^2 = variance)

Item No.	Upper 27% Group $\bar{x}$	Upper 27% Group σ^2	Lower 27% Group $\bar{x}$	Lower 27% Group σ^2	t-value	Significant level
1	0.28	0.20	0.02	0.02	4.41	$p<0.001$
2	0.60	0.24	0.30	0.21	3.46	$p<0.001$
3	0.30	0.21	0.02	0.02	4.61	$p<0.001$
4	0.72	0.20	0.13	0.12	8.01	$p<0.001$
5	0.72	0.20	0.15	0.13	7.64	$p<0.001$
6	0.57	0.25	0.00	0.00	8.86	$p<0.001$
7	0.32	0.22	0.10	0.09	3.03	$p<0.01$
8	0.63	0.23	0.25	0.19	4.58	$p<0.001$
9	0.68	0.22	0.05	0.05	9.55	$p<0.001$
10	0.37	0.23	0.02	0.02	5.44	$p<0.001$
11	0.60	0.24	0.05	0.05	7.95	$p<0.001$
12	0.62	0.24	0.05	0.05	8.24	$p<0.001$
13	0.45	0.25	0.37	0.23	0.93	N.S.
14	0.70	0.21	0.18	0.15	6.67	$p<0.001$
15	0.35	0.23	0.22	0.17	1.64	N.S.
16	0.63	0.23	0.07	0.06	8.09	$p<0.001$
17	0.32	0.22	0.10	0.09	3.03	$p<0.01$
18	0.70	0.21	0.12	0.10	8.07	$p<0.001$
19	0.82	0.15	0.17	0.14	9.37	$p<0.001$
20	0.72	0.20	0.22	0.17	6.34	$p<0.001$
21	0.43	0.25	0.13	0.12	3.87	$p<0.001$
22	0.77	0.18	0.08	0.08	10.48	$p<0.001$
23	0.58	0.24	0.03	0.03	8.12	$p<0.001$
24	0.48	0.25	0.13	0.12	4.49	$p<0.001$
25	0.77	0.18	0.18	0.15	7.88	$p<0.001$
26	0.52	0.25	0.13	0.12	4.91	$p<0.001$
27	0.28	0.20	0.00	0.00	4.87	$p<0.001$
28	0.42	0.24	0.05	0.05	5.27	$p<0.001$
29	0.73	0.20	0.15	0.13	7.95	$p<0.001$
30	0.83	0.14	0.28	0.20	7.29	$p<0.001$
31	0.68	0.22	0.13	0.12	7.39	$p<0.001$
32	0.33	0.22	0.03	0.03	4.61	$p<0.001$
33	0.77	0.18	0.20	0.16	7.54	$p<0.001$
34	0.60	0.24	0.05	0.05	7.95	$p<0.001$
35	0.82	0.15	0.05	0.05	13.37	$p<0.001$
36	0.88	0.10	0.53	0.25	4.57	$p<0.001$
37	0.68	0.22	0.15	0.13	7.04	$p<0.001$
38	0.72	0.20	0.03	0.03	10.92	$p<0.001$
39	0.75	0.19	0.08	0.08	10.05	$p<0.001$

Figure 7 Differences in mean scores between the upper 27% group and the lower 27% group in responding to each item of the Piers-Harris Children's Self-Concept Scale

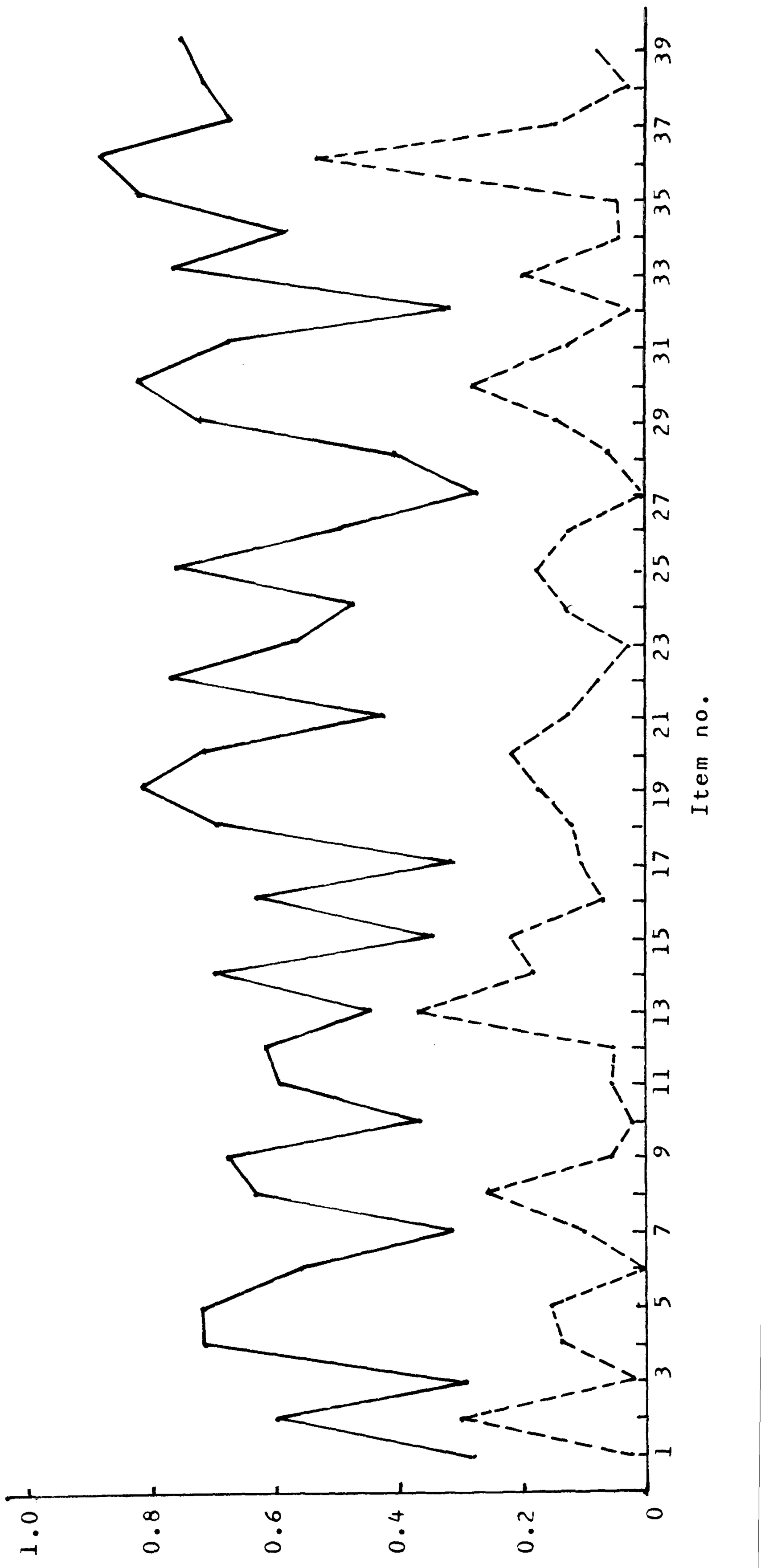


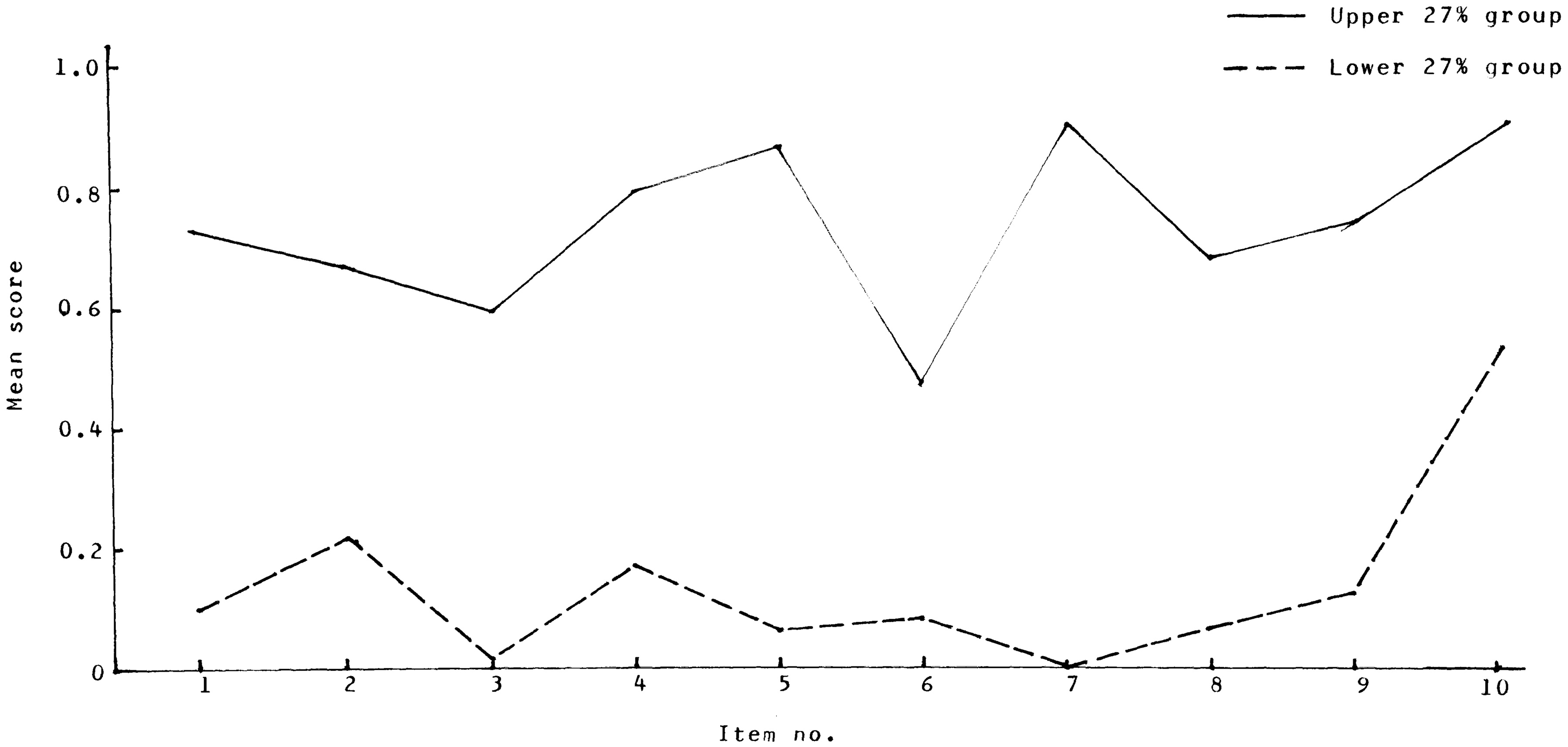
Table 15 The difficulty indices, the discriminating indices and the validity indices of each item of the Children's Manifest Anxiety Scale

Item No.	Difficulty Index	Discriminating Index	Validity Index
1	.39	.58	.70
2	.42	.39	.50
3	.29	.54	.71
4	.46	.56	.67
5	.43	.74	.81
6	.27	.37	.58
7	.42	.85	.88
8	.35	.58	.73
9	.42	.56	.67
10	.71	.27	.42

Table 16 Differences in mean scores ($\bar{x}$) between the upper 27% group and the lower 27% group in responding to each item of the Children's Manifest Anxiety Scale (σ^2 = variance)

Item No.	Upper 27% Group $\bar{x}$	Upper 27% Group σ^2	Lower 27% Group $\bar{x}$	Lower 27% Group σ^2	t-value	Significant level
1	0.73	0.20	0.10	0.09	8.21	$p<0.001$
2	0.67	0.22	0.21	0.17	5.04	$p<0.001$
3	0.60	0.24	0.02	0.02	7.70	$p<0.001$
4	0.80	0.16	0.17	0.14	7.89	$p<0.001$
5	0.87	0.12	0.06	0.05	13.46	$p<0.001$
6	0.49	0.25	0.08	0.07	4.95	$p<0.001$
7	0.91	0.08	0.00	0.00	21.47	$p<0.001$
8	0.69	0.21	0.06	0.05	8.28	$p<0.001$
9	0.76	0.18	0.13	0.12	7.80	$p<0.001$
10	0.91	0.08	0.54	0.25	4.59	$p<0.001$

Figure 8 Differences in mean scores between the upper 27% group and the lower 27% group in responding to each item of the Children's Manifest Anxiety Scale



5. Summary

To sum up the previous results, it indicated three major conclusions. Firstly, the short form of the Piers-Harris Children's Self-Concept Scale had been found to have a better internal consistency and more adequate temporal stability than the short form of the Coopersmith Self-Esteem Inventory in assessing the self-esteem of preadolescent educationally sub-normal children in England. In addition, the Children's Manifest Anxiety Scale showed a reasonably high internal consistency as revealed by the K-R 20 index and the split-half reliability. Although the K-R 20 indices of the short form of the Nowicki-Strickland Locus of Control Scale for Children were high, yet its split-half reliabilities in the sex comparison and the age-group comparison were not consistent, especially a negative split-half reliability had been identified in the eleven-year-old group. Secondly, there was no sex effect on responding to the four selected instruments. Item analyses, however, showed that some items in the Piers-Harris Self-Concept Scale, the anxiety scale, and the locus-of-control scale were answered differently by boys and girls. Thirdly, children of different ages did not show any difference in responding to the Piers-Harris Self-Concept Scale, the Children's Manifest Anxiety Scale, and the Nowicki-Strickland Locus of Control Scale but the three age-groups responded differently to the Self-Esteem Inventory. Since the short form of the Piers-Harris Children's Self-Concept Scale and the short form of the Children's Manifest Anxiety Scale had been found to have high internal consistency and items of these instruments showed good discriminating powers, it was decided to use both tests in the main study for assessing children's self-esteem and their general anxiety,

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b. Development of the Observational System

Since the main purpose of this study was to examine the effects of students' self-esteem and teachers' perception of children's self-esteem on their classroom interactions, another objective of the pilot study was to select or develop an observational system which was adequate for collecting data to test the research hypotheses and to answer the research questions. Initially, it was decided to choose one of the observational systems from the Mirrors for Behaviour (Simon and Boyer, 1974) or from the British Mirrors (Galton, 1978). It was discovered, however, that all existing coding schemes were inappropriate for the present investigation. Therefore, an observational instrument was finally designed based on the researcher's observations in special classrooms and his familiarity of the following published observational schedules:

1. The Teacher-Pupil Verbal Contacts Schedule (Garner and Bing, 1973),
2. The Teacher Rating Schedule (Rubovits, 1970),
3. Teacher-Child Dyadic Interaction (Brophy and Good, 1969),
4. The Pupil Record (Galton, Simon and Croll, 1980), and
5. Verbal Interaction Category System (Amidon and Hunter, 1974).

The observational system developed in the pilot study consists of the following five areas:

1. Pupil's activity during the observation period which is subdivided into "on-task" and "off-task" behaviours.
2. Pupil's initiated contact with a teacher either instructionally or noninstructionally.
3. Teacher's reaction to a target pupil's instructional or noninstructional contact either in a positive or a negative way.

4. Teacher's initiated contact with a target pupil which is further categorised into instructional, noninstructional, and disciplinary contacts.
5. Pupil's reaction to teacher's instructional, noninstructional, or disciplinary contacts either in a positive or a negative way.

The above five areas are mutually exclusive for recording and, during the observation, only one child who is described as the "target pupil" is the focus of coding. The target pupil's activity and his initiated contact with a teacher or a teacher's initiated contact with the target child are coded at regular twenty-second intervals. When the observer focuses on a target pupil, he first notices whether the target pupil is "on-task" or "off-task". Then, he decides whether there is any interaction between the target pupil and the class teacher. If there is a contact between them, the observer observes who initates the contact and how the recipient responds to that contact. After twenty-second observation, the observer spends ten seconds to record the observed behaviour in the **Interaction** Record Sheet (Appendix 3). The main categories of the observational schedule with their brief definitions are set out in Table 17.

Table 17 The Behavioural Categories of the Observational System

Category		Brief definition of item
A	Activity	Target pupil's behaviour during the observation session.
A.1	On Task	Target's action relate to the task or activity of immediate concern in the classroom.
A.1.1	Subject-I	Target engages in subject matter and works independently, e.g., doing exercises, doing calculation.
A.1.2.	Subject-G	Target engages in subject matter with other children, e.g., group discussion, making **model.**

	Category	Brief definition of item
A.1.3	Nonsubj-I	Target engages in nonsubject matter with teacher's permission after finishing the assignment, e.g., constructing Lego, playing jigsaw puzzle, reading.
A.1.4	Nonsubj-G	Target engages in nonsubject matter with other children with teacher's permission, e.g., distributing milk, cleaning table.
A.2	Off Task	Target's action which is not related to the task or activity of immediate concern in the classroom.
A.2.1	Routine work	Target engages in some routine work without teacher's permission, e.g., going out of the classroom, sharpening pencil.
A.2.2	Distracted	Target looks around and does nothing, e.g., day-dreaming, watching other pupils working.
A.2.3	Disturbing	Target disturbs other pupils' work or makes noise to attract other people in the classroom, e.g., taking other child's possession, whistling, moving table to and fro.
A.2.4	Playing-I	Target plays individually without disturbing others in the classroom.
A.2.5	Playing-G	Target plays with other children in the classroom.
A.2.6	Talking	Target talks with other children in the classroom.
B	Initiated Contact (P)	Target pupil makes an initiated contact with the class teacher.
B.1	Instructional	Target makes an instructional contact with the teacher. Instructional contacts are those related to curriculum content or to the attainment of educational objectives.
B.1.1	Ask Q	Target asks teacher a question related to the subject matter.
B.1.2	Ans Q	Target answers teacher's question which is not directly addressed to him, either by shouting out the answer or raising up his hand for calling.
B.1.3	Give S/In	Target gives teacher suggestion or information related to the subject matter during discussion or doing project.
B.1.4	Wait C/I	Target waits for correcting and instruction after finishing the assigned work.
B.2	Noninstructional	Target makes a noninstructional contact with the teacher. Noninstructional contacts are those not related to curricular content but related to routine work in the classroom.

Category		Brief definition of item
B.2.1	Ask Q	Target asks teacher a question not related to the subject matter, e.g., "Miss, where is the dustbin?", "Where are we going after the break?"
B.2.2	Rou-W	Target asks teacher for permission to do some routine work or offer help voluntarily, e.g., "Miss, can I help you to clean the floor?", "Can I go to the toilet, Miss?"
B.2.3	Give S/I	Target gives teacher suggestion or information which is not related to the subject matter, e.g., "Miss, Paul is going out of the classroom.", "Miss, Debra has taken my pencil."
C	Reaction (T)	Teacher responds to the target pupil's contact.
C.1	Instructional	Teacher responds to the target's instructional contact.
C.1.a	+ve FB	Teacher responds positively to the target's instructional contact.
C.1.a.1	Ans P's Q/S/In	Teacher simply answers the target's question, suggestion, and information without saying yes or no, e.g., "It's an aeroplane."
C.1.a.2	Ans + Acpt	Teacher answers and accepts the target's instructional contact either verbally or non-verbally, e.g., "That's right, John!", nodding.
C.1.a.3	An + Ac + Pr	Teacher answers, accepts, and gives praise to the target's instructional contact, e.g., "Yes, two plus two is four. Well done! Niel.", "Very good!"
C.1.a.4	Ans + Cort	Teacher answers the target's question and corrects it if it is incorrect or partly corrected, including correcting the target's exercise immediately.
C.a.b	-ve FB	Teacher responds negatively to the target's instructional contact.
C.a.b.1	Ignore Q/A/S/C	Teacher deliberately ignores the target's question, answer, suggestion, and the correction of the child's exercise.
C.a.b.2	Reject Q/A/S/C	Teacher rejects the target's question, answer, suggestion, and the correction of the child's exercise but without any verbal or nonverbal criticism, e.g., "No, you can't do that."
C.a.b.3	Reject + Crit	Teacher rejects and criticises the target's answer, question, suggestion, and exercise.

	Category	Brief definition of item
C.2	Noninstruc-tional	Teacher responds to the target's non-instructional contact.
C.2.a	+ve FB	Teacher responds positively to the target's noninstructional contact.
C.2.a.1	Ans P's	Teacher answers the target's question, suggestion, and information positively, e.g., "Yes, we're going to watch the television."
C.2.a.2	Give permis-sion	Teacher gives the target permission to do some routine work, e.g., "Yes, you can go to get the milk."
C.2.b	-ve FB	Teacher responds negatively to the target's noninstructional contact.
C.2.b.1	Reject	Teacher rejects the target child's request, e.g., "No, you are not allowed to leave your chair."
C.2.b.2	No reaction	Teacher deliberately shows no response to the target's noninstructional question or request.
D	Initiated Contact (T)	Teacher makes an initiated contact with the target pupil.
D.1	Instructional	Teacher makes an instructional contact with the target.
D.1.1	Ask Q	Teacher asks the target a question related to the subject matter, e.g., "What are those words over there?", "Have you done your work?"
D.1.2	G-Inst	Teacher gives instructions related to the subject matter to the target, e.g., "Glen, read this page before the break.", "John, will you colour this picture, please?"
D.2	Noninstruc-tional	Teacher makes a noninstructional contact with the target child.
D.2.1	Ask Q	Teacher asks the target a question not related to the subject matter, e.g., "What did you do last night, Paul?", "What are you doing over there, Simon?"
D.2.2	G-Inst	Teacher gives instruction not related to the subject matter to the target, e.g., "Wayne, put the chair under the table, please?", "Joyce, will you please put this book away?"
D.3	Discipline	Teacher tries to control the target child's misbehaviour in the classroom, e.g., "Carl, go to your seat and sit properly!"
E	Reaction (P)	Target pupil responds to a teacher's contact.

	Category	Brief definition of item
E.1	Instructional	Target responds to a teacher's instructional contact.
E.1.a	+ve FB	Target responds positively to a teacher's instructional contact.
E.1.a.1	Ans T's Q	Target answers teacher's question immediately.
E.1.a.2	Follow Inst	Target follows teacher's instruction immediately.
E.1.b	-ve FB No response	Target responds negatively to a teacher's instructional contact, showing no response to teacher's question and instruction.
E.2	Noninstructional	Target responds to a teacher's noninstructional contact.
E.2.a	+ve FB	Target responds positively to a teacher's noninstructional contact.
E.2.a.1	Ans T's Q	Target answers teacher's noninstructional question or request immediately.
E.2.a.2	Follow Inst	Target follows teacher's noninstructional direction or command immediately.
E.2.b	-ve FB	Target responds negatively to a teacher's noninstructional contact, showing no response to a teacher's noninstructional question or request.
E.3	Discipline	Target responds to a teacher's disciplinary contact.
E.3.1	Show response	Target shows response to a teacher's disciplinary contact.
E.3.2	No response	Target shows no response to a teacher's disciplinary contact, continuing to misbehave or to ignore command.

After developing the observational system, observer training sessions were conducted in three phases: (1) mastery of the coding category definitions and coding procedures, (2) practice coding of classroom interactions from videotape recordings, and (3) coding of teacher-pupil interactions in actual classroom settings.

In the first phase of observational training, this researcher and his wife studied both the behavioural categories and definitions of items as shown in Table 17 and tried to memorise the coding categories in the Interaction Record Sheet

(Appendix 3) in order to become familiar with the observational categories and the procedures for coding. Then, both observers wrote out their own examples for each of the coding categories and discussed among themselves whether the examples were correctly representative of the behavioural categories. Before they began practice on the videotape, each of the observers provided some examples of the behavioural categories so as to check whether or not the opposite party agreed to code them on the same categories.

The second phase was carried out during the summer period of 1981 and it was based on the televised segments of actual classroom interactions. During this training session, both observers started to code the selected samples of student behaviour, followed by a selection of teacher behaviours and finally the actual interactions between teacher and student. Altogether, two weeks were spent on videotape practice. By the end of the training period, good inter-observer agreement had been reached, with Scott's inter-rater reliability coefficients ranging from .68 to .91 and Cohen's Kappa ranging from .82 to .95 (Table 18)[1].

Table 18 Inter-observer reliability indices for the selected variables in the second phase of observational training

Behavioural category	Scott's coefficient	Cohen's Kappa
On Task	.877	.937
Off Task	.856	.925
Activity (total)	.911	.955
Initiated Contact (P)	.828	.910
Reaction (T)	.680	.821
Initiated Contact (T)	.679	.824
Reaction (P)	.692	.830

1 Examples for the computation of the Scott's coefficient and the Kappa are presented in Appendices 2e and 2f.

In the final phase of the observational training, both observers coded the actual classroom interactive behaviour of children and teachers in the classroom setting. Observation during this session was conducted in several classrooms during the autumn term of the school year 1981-82. Each observation was carried out after the teacher had administered the tests to his or her children. During the five observations, one hundred and sixty frames of interactions had been coded by each observer. Once again, inter-rater reliabilities were calculated using both the Scott's formula and the Cohen's Kappa statistic with the results shown in Table 19.

Table 19 Inter-observer reliability indices for the selected variables in the final phase of observational training

Behavioural category	Scott's coefficient	Cohen's Kappa
On Task	.884	.940
Off Task	.699	.844
Activity (total)	.888	.942
Initiated Contact (P)	.714	.882
Reaction (T)	.749	.862
Initiated Contact (T)	.847	.920
Reaction (P)	.803	.894

Upon achieving the eighty per cent inter-rater reliability criteria in the third observer-training phase, this researcher decided that he was sufficiently competent and reliable to collect data in the classroom setting.

C. <u>The Main Study</u>

The aims of the main study were (1) to explore the effect of pupils' self-esteem on their interactions with the class teacher; (2) to examine the effect of teacher's evaluation of

students in terms of their self-esteem on their contacts with the students; (3) to investigate whether or not teacher-pupil interactions may affect children's self-esteem or teacher's evaluation of students' self-esteem; (4) to find out differences between mentally-retarded boys and mentally-retarded girls in responding to items of the self-esteem inventory; (5) to identify variables which may relate to teachers' evaluation of student's self-esteem; and (6) to study the differences between the high self-esteem group and the low self-esteem group in responding to various measurements used in the study. These aims necessitated at least two stages of data collection and different numbers of subjects in each stage.

The first stage of the main study was conducted before the mid-autumn term of the academic year 1981-82. During this stage, various instruments were administered to all ten- to twelve-year-old educationally-subnormal children in six special schools. At the same time, teachers of these children were asked to complete a behavioural rating scale and assess children's self-esteem with the same self-esteem inventory used for children. The second stage was carried out in four classes of two special schools from October 1981 to April 1982. The main objective of the second stage was to observe a selected number of children in each classroom and record their interactions with their teacher or vice versa. The following sections will describe the samples, instruments, and methods of data collection in each stage.

a. <u>Description of Samples</u>

In the first atage, student subjects were two hundred and fifty ten- to twelve-year-old educationally-subnormal children (ESN-M) drawn from six special schools located in both urban and

suburban areas of north-east England. These children came from different family backgrounds and their IQs reported as ranging from fifty to eighty. Table 20 shows the number of children participating in the first stage of the main study and the number of children being assessed by the twenty-seven teachers.

Table 20 Number of children participating in the first stage of the main study and number of children being assessed by their teachers

	Number of children in the main study			Number of children assessed by teachers		
Age	Boy	Girl	Total	Boy	Girl	Total
10	64	37	101	54	34	88
11	57	30	87	56	28	84
12	44	18	62	44	18	62
Total	165	85	250	154	80	234

The sample in the second stage of the main study consisted of four female teachers and twenty-nine ten- to twelve-year-old educationally-subnormal children from four classrooms in two special schools. These twenty-nine students were selected according to their self-reported self-esteem scores and the scores obtained in the teachers' reported self-esteem. In each of these four classrooms, children's self-reported self-esteem scores were ranked from the highest to the lowest and the scores of teacher-evaluated self-esteem were arranged in a similar way. Then, children with self-reported self-esteem scores over 12 were classified as the high self-esteem subjects and those with self-esteem scores less than 12 were classified as the low self-esteem subjects. From teachers' evaluated self-esteem scores, children with teacher-evaluated self-esteem scores over 10 were identified as the high teacher-rating subjects and those with

teacher-evaluated self-esteem scores below 10 were identified as the low teacher-rating subjects.[1] As a result, twenty-nine children who were at the extreme ends of both rankings reached the criteria and they were assigned to one of the four groups as follows:

1. High-High Group (HH) - This group of students had both high self-rating self-esteem scores and high teacher-rating self-esteem scores.
2. High-Low Group (HL) - This group of students had high self-rating self-esteem scores but low teacher-rating self-esteem scores.
3. Low-Low Group (LL) - This group of students had both low self-rating self-esteem scores and low teacher-rating self-esteem scores.
4. Low-High Group (LH) - This group of children had low self-rating self-esteem scores but high teacher-rating self-esteem scores.

The number of children in the HH, HL, LL and LH groups were 6, 8, 7 and 8 respectively. Altogether, there were fourteen girls and fifteen boys in the student sample. Each subject's sex, age, self-reported self-esteem score and teacher-reported self-esteem score are presented in Table 21.

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1 The criteria for selecting 12 as a median split score because it was a mean calculated from 250 10-12 year old ESN(M) children in response to the self-esteem inventory in the main study. Also, a median split score of 10 was selected because it was the mean calculated from teachers' evaluation of 234 10-12 year old ESN(M) children in the main study.

Table 21 Descriptive data on subjects with self-rating self-esteem scores (S.R.S.E.) and teacher-rating self-esteem scores (T.R.S.E.)

Subject	Sex	Age	Group	S.R.S.E.	T.R.S.E.
1	Boy	11	HH	21	18
2	Boy	10	HH	23	19
3	Boy	12	HH	18	20
4	Boy	10	HH	19	27
5	Girl	12	HH	28	16
6	Girl	11	HH	26	16
7	Girl	10	HL	13	6
8	Boy	10	HL	16	7
9	Girl	11	HL	19	5
10	Boy	11	HL	18	4
11	Girl	10	HL	35	1
12	Boy	11	HL	22	3
13	Girl	11	HL	20	5
14	Boy	12	HL	18	7
15	Girl	10	LL	4	1
16	Girl	12	LL	6	9
17	Girl	11	LL	5	2
18	Boy	11	LL	2	3
19	Boy	10	LL	12	1
20	Girl	12	LL	4	6
21	Girl	11	LL	4	3
22	Girl	10	LH	4	20
23	Girl	12	LH	4	18
24	Girl	11	LH	10	14
25	Boy	11	LH	8	16
26	Boy	11	LH	5	13
27	Boy	11	LH	8	14
28	Boy	12	LH	8	17
29	Boy	11	LH	4	15

b. Description of Instruments

Since the first stage of the main study was to collect scores of children's self-esteem, general anxiety, and reading age, several instruments were chosen and administered to all involved children. In addition, teachers of these children were asked to assess their students' self-esteem with the same self-esteem inventory and to measure their children's classroom behaviour with a children's behaviour questionnaire. The four instruments used in the first stage of the main study are described in the following paragraphs.

The instrument for measuring the self-esteem of the educationally-subnormal children was the revised short-form of the Piers-Harris Children's Self-Concept Scale (Appendix 1e). This short-form was originally developed by Bagley and Mallick (1978) after a principal-components analysis of data from the Piers-Harris Self-Concept Scale (1964) with a sample of one hundred and sixty-five twelve-year-old English subjects. The revised form was further refined by this researcher in the pilot study using two hundred and twenty-four ten- to twelve-year-old ESN(M) children in England. After item analysis, the revised form consisted of thirty-seven items to each of which the subject indicates whether the item describes the way he or she feels. The split-half coefficients of .90 (age 10), .79 (age 11), and .83 (age 12); test-retest reliabilities of .79 (age 10 after four weeks), .65 (age 11), and .73 (age 12); and Kuder-Richardson 20 coefficients ranging from .82 to .87 were found in the pilot study. Also, it was found that this form could be used with both sexes and children aged 10 to 12.

The short-form of the Children's Manifest Anxiety Scale (Levy, 1958) was used to assess children's general anxiety

(Appendix 1c). This instrument comprised of ten items which were selected from the Children's Form of the Manifest Anxiety Scale (Castaneda, McCandles and Palermo, 1956) after standardisation and item analysis. According to Levy, the short-form scores correlated .84 to .95 with the full-form scores for nine- to eleven-year-old children. The corrected odd-even reliability of .50 and the K-R 20 homogeneity coefficient of .70 were found in the pilot study carried out on one hundred and seventy-four 10-12 year old ESN(M) children. Since all ten items showed no significant differences for either sex or grade, it could be used equally well for both sexes and for children within the age range ten to twelve years.

Children's reading ages were assessed by the Form A of Young's Group Reading Test (Young 1969). The test comprised two sections: section A consisted of fifteen picture-word matching items and section B included thirty multiple-choice sentences (Appendix 1f). Since this test was a power test, subjects were allowed to spend four minutes to complete the pictorical section and nine minutes to do the sentence section. As it was a diagnostic test, it could be applied to both normal and retarded populations. It was reported in the test manual that the correlation between scores on Form A and scores on Form B of one hundred seven-year-old children was .95. Also, a study by the same author found correlations of .88 between the Young's Reading Test and the Neale Analysis of Reading Ability and .88 between the Young's Reading Test and the Vernon's Graded Word Reading Test. In addition, this test showed a satisfactory predictive validity.

A Children's Behaviour Questionnaire (Rutter, 1967) was chosen for teachers to measure their students' behaviour in the

classroom (Appendix 1g). This behavioural scale was developed in eight primary schools in England. It consisted of twenty-six brief statements concerning the child's behaviour to which the teacher had to check whether the statement "certainly applies", "applies somewhat" or "doesn't apply" to the child in question. Scores range from 0 to 52 by summing the scores of the twenty-six items and children with a total score of 9 or more are designated as showing some disorder. Test-retest reliability with a two-month interval was .89 and the inter-rater reliability was .72. Using a slightly modified version of the scale, Richman (1964) found that the retest reliability over a 13-week period was .85 and that the correlation between the ratings of a class teacher and a special-subject teacher was .70.

Classroom observational data in the second stage of the main study were collected using the observational system developed in the pilot study.[1] This system includes five sections for making observations of student classroom activities, teacher-initiated contacts, teacher's response to a child's contact, pupil's initiated interactions, and pupil's reactions to a teacher's contact. The system consists of forty-one behavioural categories which were adapted from the Teacher-Pupil Verbal Contacts Schedule (Garner and Bing, 1973), the Teacher Rating Schedule (Rubovits, 1970), the Teacher-Child Dyadic Interaction (Brophy and Good, 1969), the Pupil Record (Galton, Simon and Croll, 1980), and the Verbal Interaction Category System (Amidon and Hunter, 1974). During the observation, the observer watches the target child for a period of twenty seconds, then goes through a long list of behavioural categories prescribed in the

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1 More information on the development of the observational system are presented in the section b of the pilot study.

Interaction Record Sheet (Appendix 3), coding the behaviour exhibited during the period. When the tallying for one period has been completed, another twenty-second observation period is begun focusing on the next target subject. In each one-hour observational session, sixteen observation periods of each target subject are tallied in this way. In the training section of the pilot study, the inter-rater reliabilities calculated from the data collected from videotape practice ranged from .68 to .91 (Scott's coefficients) and from .82 to .95 (Cohen's Kappa). Also, good inter-observer agreement was reached in the classroom practice, ranging from .70 to .89 (Scott's coefficients) and from .84 to .95 (Cohen's Kappa).

c. Data Collection

As the main purposes of the study were to examine the self-esteem of the educationally-subnormal children and to study the effects of children's self-esteem or teachers' perception of their children on the classroom interactions, data were collected in two phases. In the first phase, permission was again obtained from the Director of Education at the beginning of September 1981 to contact seven special schools for the educationally-subnormal children in one county. At the opening of school in autumn, six schools who had agreed to participate in the study were visited by the researcher and an outline of the study was given to each headteacher. Headteachers were asked to confer with the class teachers of those ten- to twelve-year-old children and to request permission for administering various tests to their children in the classrooms. After the headteachers obtained the consent of the teachers, the researcher met each teacher to set up the schedule of testing. From the third week to the sixth week of

the autumn term, the revised Piers-Harris Children's Self-Concept Scale, the Children Manifest Anxiety Scale, and the Young's Group Reading Test were administered to all ten- to twelve-year-old children in six schools. All tests were given in the classroom and items of each measurement were read twice to the children by the classteachers to make allowance for reading difficulties. Since most of the mentally-retarded children had short attention span, two sessions of testing were carried out in each class. The self-esteem inventory was given in the first test session whereas the anxiety scale and the group reading test were administered in the second test session. At the same time, teachers of these children were asked to assess their students' self-esteem with the revised Piers-Harris Self-Concept Scale and to complete the Children's Behaviour Questionnaire for each child.

The second phase which was mainly for classroom observation began in the second week after the mid-autumn term and ended a week before the mid-summer term in April, 1982.[1] Altogether, four classes in two special schools were involved in the study. In order to obtain a more accurate and natural classroom teacher-pupil interaction, the class teachers were not informed of the specific purpose of the study, nor of the nature of the recordings made in the classroom. The teachers were initially informed that the observer would be coding the social interactions of their

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1 In special schools, the re-assessment of children is made in March every year by the psychologists or class teachers. As a result, some of the target subjects in the study had been transferred to other schools or promoted to another class. So, the study which was originally designed to be ended in July could not be carried out.

children in the classroom.[1] The seating plan of each class was obtained from the teacher and the observations were conducted during a period of two weeks within each half term for the chosen schools taken in turn. In every half term, each class was observed nine times. All observational data were collected in language or number-work lessons.

During each one-hour observation, the observer first identified the target subject in the classroom. Then, he watched the target child for twenty seconds and recorded for about ten seconds. After finishing the coding, the observer moved on to the next target subject. He returned to the first child after every target subject had been observed. In each thirty-second observation, the observer had to notice whether the target child was "on task" or "off task", who initiated the contact, and how the child or the teacher responded to such interaction. A sample of the observation coding system is contained in Appendix 3.

In addition to the observations in the second stage of the main study, the revised Piers-Harris Scale was administered twice to all children in four classrooms in the middle and at the end of the study. Teachers of these children were also asked to complete the revised Piers-Harris Scale for each child in the class before each mid-term break. Measuring every child's self-esteem in the class prevented both the target children and the four teachers from identifying who were the subjects chosen for the study.

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1 The outline of the study sent to each school was slightly different from the researcher's research plan, especially the former one only emphasised the observation of children's social interactions in the classroom instead of teacher-pupil interactions.

d. Statistical Analysis

Since the data collected in the main study were from two sources in two stages and as the number of subjects in each stage varied, both parametric and nonparametric statistics were used for data analyses. The analysis of variance, the t-test, and the product-moment correlation method of parametric statistics were utilised to treat data collected from the self-esteem inventory, the anxiety scale, the behaviour questionnaire, and the group reading test. As the number of subjects in the observational study was small and they were not drawn from a normally-distributed population, the Mann-Whitney U test, the Kruskal-Wallis one-way analysis of variance, the Friedman two-way analysis of variance, and the Wilcoxon matched-pairs signed-ranks test were used to analyse the observational data.

To test the first two null hypotheses stating that children with the same level of self-rating and teacher-evaluated self-esteem did not differ significantly from children with same level of self-rating self-esteem but different level of teacher-evaluated self-esteem in their contacts with the teacher, mean frequencies of the two groups in each behavioural category were calculated and the comparison of these two group-means was analysed by the Mann-Whitney U test (Siegel, 1956, pp. 116-127). Similarly, the third and the fourth hypotheses assuming that teachers' contacts with children having the same level of teacher-evaluated and self-rating self-esteem did not differ from their contacts with children having same level of teacher-evaluated self-esteem but different level of self-rating self-esteem were tested by the Mann-Whitney U test. The last two null hypotheses, proposing that there were no significant change in children's self-esteem and teachers' evaluation of children's

self-esteem over a period of time, were treated by the Friedman two-way analysis of variance (Siegel, 1956, pp. 166-172), using children's self-esteem scores measured in three testing sessions and teacher-evaluated self-esteem scores assessed in three different stages.

For answering the research questions framed in the main study, several types of statistical analyses were performed depending on the nature of variables. Generally, the Mann-Whitney U test was used to compare the mean frequencies between the high self-esteem group and the low self-esteem group in their contacts with a teacher or to compare the mean frequencies of teachers' contacts with the high teacher-evaluated group and with the low teacher-evaluated group. To investige the differences among the four self-esteem groups (HH, HL, LL, and LH) in their contacts with their classroom teacher, mean frequencies of the four groups in their classroom behaviours were examined by the Kruskal-Wallies one-way analysis of variance (Siegel, 1956, pp. 184-193). In order to find out the differences between the high self-esteem children and the low self-esteem children or the differences between the high teacher-evaluated group and the low teacher-evaluated group in responding to the items of various measures, the t-test was used to test the significance of differences between the mean scores on each item of different instruments. Finally, the Pearson product-moment correlation coefficients (Ferguson, 1976, pp. 106-107) were calculated to discover the relationships between the self-esteem inventory and other measures and to examine the relationships between the self-esteem scores and the behavioural scores collected in the observational periods.

IV. DATA ANALYSES AND RESULTS

Since the purposes of the main study were to examine the effects of children's self-esteem on their interactions with their class teachers, to study the effects of teachers' evaluations of students' self-esteem on their classroom contacts with students, and to find out whether or not children's self-esteem and/or teachers' evaluations changed over a period of time, six null research hypotheses were formulated to test the three assumptions: (1) human behaviour is directed and guided by one's self-concept, (2) self-concept develops through social interaction, and (3) teachers' expectations of a child will affect his or her interaction with that child. Additionally, seven research questions were framed to explore the self-esteem of mentally-retarded children and the relationships between self-esteem and other variables investigated in the study.

In order to present the large volume of statistical findings in a meaningful and concise fashion, the results of the study will be presented in four sections in this chapter. The first section reveals the results of data analysis for testing the six null hypotheses. Data analyses for answering the seven research questions are the focus of the second section. The third section presents some related findings from the analyses of data collected by various measurements and the observation. Ultimately, the findings of the main study are summarised in the final section.

A. Testing of Research Hypotheses

To examine how the children with different levels of self-esteem interacted with their class teachers, the frequency of occurrence of each behavioural category in a 20-second interval

was calculated for each target subject in the main study. Then, mean frequencies of occurrence of each behaviour category shown by each of the four self-esteem groups were computed by adding the frequencies for all the target children and dividing by the number of these children within a group.[1] These mean frequencies were compared by the Mann-Whitney U test to test the first two research hypotheses stating that children with the same level of self-rating and teacher-evaluated self-esteem do not differ significantly from children with the same level of self-rating self-esteem but with a different level of teacher-evaluated self-esteem in their contacts with the teacher.[2]

As shown in Table 22a and Table 22b, the results revealed a significant difference between the High-High (HH) group and the High-Low (HL) group[3] on the mean frequencies of occurrence of only one of the behavioural categories. Children in the HH group answered more instructional questions asked by teachers than did the children in the HL group ($p<.04$, two-tailed test). For all of the other categories, no significant differences were found between the two self-esteem groups on their mean frequencies of interactions. Children in both self-esteem groups made almost the same number of instructional and noninstructional contacts with their class teachers. Although no significant differences were found between the two groups in responding to their teachers' contacts, children in the HH group responded more to their

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1 Mean frequencies of occurrence for each behavioural category shown by the four self-esteem groups are presented in Appendix 4a.

2 Example for the computation of the Mann-Whitney U-value is demonstrated in Appendix 2g.

3 For the definitions of the High-High, High-Low, Low-Low, and Low-High groups, readers can refer to page 110.

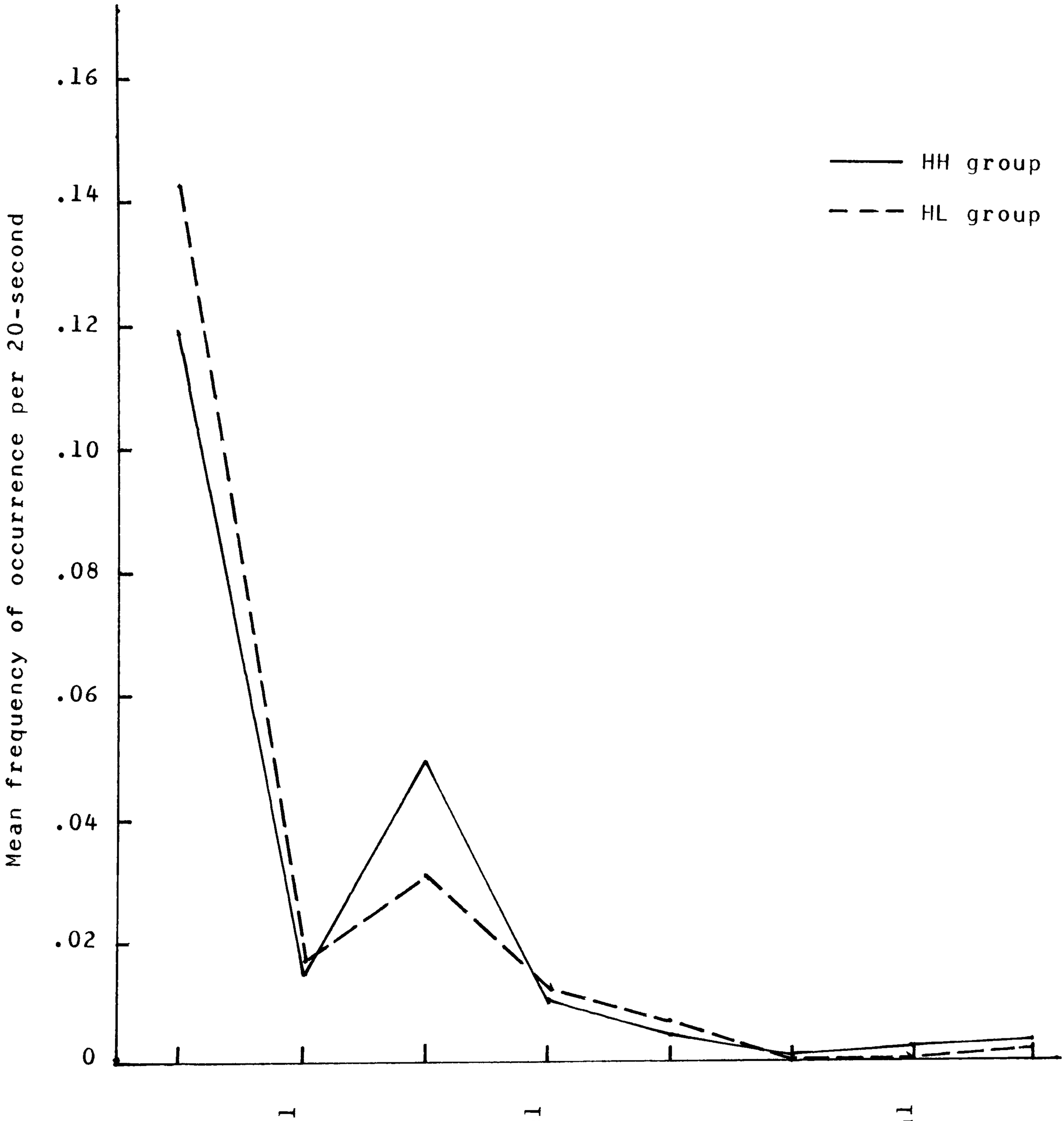
Table 22a Differences in mean frequencies (m.f.) of initiated contacts with teachers between the High-High group (HH) and the High-Low group (HL)

Variable	HH (N=6) m.f.	HL (N=8) m.f.	U-value C.R.=11	Significant level
Instructional				
Ask Q	0.0143	0.0199	17.5	p<0.245
Ans Q	0.0122	0.0191	12.0	p<0.071
Give S/In	0.0132	0.0139	21.5	p<0.426
Wait C/I	0.0785	0.0893	22.0	p<0.426
Total	0.1181	0.1423	17.5	p<0.245
Noninstructional				
Ask Q	0.0052	0.0075	12.5	p<0.091
Rou-W	0.0034	0.0036	22.5	p<0.475
Give S/In	0.0052	0.0040	21.5	p<0.426
Total	0.0138	0.0151	21.5	p<0.426
Grand Total	0.1320	0.1574	17.0	p<0.207

Table 22b Differences in mean frequencies (m.f.) of responses to teachers' contacts between the High-High group (HH) and the High-Low group (HL)

Variable	HH (N=6) m.f.	HL (N=8) m.f.	U-value C.R.=11	Significant level
Instructional(+ve)				
Ans T's Q	0.0256	0.0127	9.5*	p<0.041*
Follow Inst	0.0234	0.0168	19.5	p<0.331
Total	0.0490	0.0295	13.0	p<0.091
Noninstructional(+ve)				
Ans T's Q	0.0040	0.0030	18.0	p<0.245
Follow Inst	0.0062	0.0090	18.5	p<0.286
Total	0.0101	0.0119	24.0	p<0.525
Discipline(+ve)				
Show response	0.0037	0.0055	22.0	p<0.426
+ve FB Total	0.0629	0.0469	16.0	p<0.172
Instructional(-ve)	0.0013	0.0000	20.0	p<0.331
Noninstructional(-ve)	0.0019	0.0003	15.5	p<0.172
Discipline(-ve)	0.0028	0.0020	20.0	p<0.331
-ve FB Total	0.0060	0.0023	15.5	p<0.172
Grand Total	0.0688	0.0492	15.0	p<0.141

Figure 9 Differences in mean frequencies of interactions with teachers between the High-High group (HH) and the High-Low group (HL)



teachers' contacts than did the HL group. The results, however, supported the first hypothesis assuming that children with both high self-rating and high teacher-rating self-esteem do not differ significantly from children with high self-rating but low teacher-rating self-esteem in their contacts with teachers.

A similar series of statistical comparisons for the Low-Low (LL) versus Low-High (LH) group were carried out on the observational data. No significant differences between children of the LL group and children of the LH group were found for any of the categories of behavioural interaction with their teachers. As indicated in Tables 23a and 23b, children in both self-esteem groups responded to teachers' contacts almost in the same way. The mean frequencies of children's initiated contacts, however, revealed that children in the LL group initiated more contacts with their class teachers than did the children in the LH group (Figure 10). Again, the analysis confirmed the second hypothesis stating that children with both low self-rating and low teacher-rating self-esteem do not differ significantly from children with low self-rating but high teacher-rating self-esteem in their contacts with teachers.

As teachers' perceptions of a child may affect their interactions with that child (Brophy and Good, 1974; Good, 1980; Larsen, 1975; Rogers, 1982), the third and the fourth hypotheses were proposed to justify this statement. Similarly, mean frequencies of teachers' interactions with their children were calculated for each self-esteem group in every behavioural category.[1] The significance of the differences between the mean frequencies of teachers' interaction with their children was

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1 Mean frequencies of teachers' contacts with the four self-esteem groups in each behavioural category are shown in Appendix 4b.

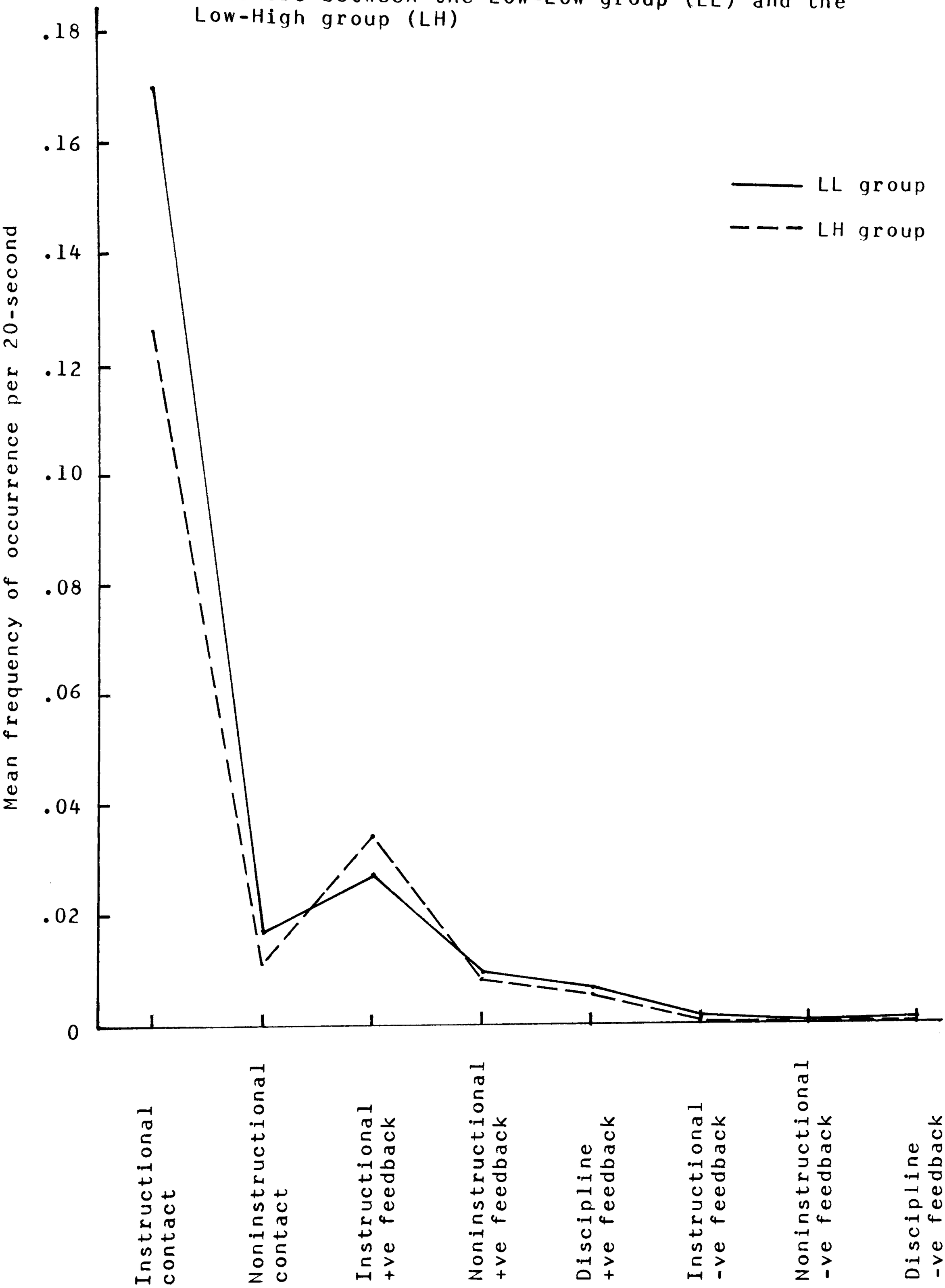
Table 23a Differences in mean frequencies (m.f.) of initiated contacts with teachers between the Low-Low group (LL) and the Low-High group (LH)

Variable	LL (N=7) m.f.	LH (N=8) m.f.	U-value C.R.=13	Significant level
Instructional				
Ask Q	0.0214	0.0137	15.0	p<0.076
Ans Q	0.0165	0.0111	18.0	p<0.140
Give S/In	0.0138	0.0149	25.0	p<0.389
Wait C/I	0.1190	0.0863	20.0	p<0.198
Total	0.1707	0.1260	17.5	p<0.140
Noninstructional				
Ask Q	0.0057	0.0031	14.5	p<0.076
Rou-W	0.0030	0.0045	23.0	p<0.306
Give S/In	0.0078	0.0036	17.0	p<0.116
Total	0.0166	0.0112	19.0	p<0.168
Grand Total	0.1873	0.1371	18.0	p<0.140

Table 23b Differences in mean frequencies (m.f.) of responses to teachers' contacts between the Low-Low group (LL) and the Low-High group (LH)

Variable	LL (N=7) m.f.	LH (N=8) m.f.	U-value C.R.=13	Significant level
Instructional(+ve)				
Ans T's Q	0.0127	0.0152	23.5	p<0.347
Follow Inst	0.0147	0.0192	19.5	p<0.198
Total	0.0273	0.0344	21.0	p<0.232
Noninstructional(+ve)				
Ans T's Q	0.0022	0.0021	27.0	p<0.478
Follow Inst	0.0066	0.0062	24.5	p<0.389
Total	0.0088	0.0083	22.5	p<0.306
Discipline(+ve)				
Show response	0.0063	0.0047	27.0	p<0.478
+ve FB Total	0.0424	0.0473	23.0	p<0.306
Instructional(-ve)	0.0010	0.0008	26.0	p<0.433
Noninstructional(-ve)	0.0000	0.0000	28.0	p<0.522
Discipline(-ve)	0.0010	0.0011	24.5	p<0.389
-ve FB Total	0.0020	0.0019	26.5	p<0.478
Grand Total	0.0444	0.0493	25.0	p<0.389

Figure 10 Differences in mean frequencies of interactions with teachers between the Low-Low group (LL) and the Low-High group (LH)



assessed by the Mann-Whitney U test. Tables 24a and 24b present the mean frequencies of teachers' interactions with children in the HH group and those in the LH group, the U-values, and the level of significance.

Taken together, the U-values (22, $p<.43$; 23, $p<.48$) revealed no significant differences in teachers' interactions with the children in the HH and the LH groups (Tables 24a and 24b). Two significant differences, however, were identified in teachers' initiated contact categories (Table 24a). Teachers made more noninstructional contacts with children in the HH group than with children in the LH group ($p<.02$, two-tailed test). Teachers especially asked children in the HH group more non-instructional questions than children in the LH group. Besides, the mean frequencies of teachers' response to children's instructional contacts showed that teachers did not reject or criticisechildren's questions, answers, and suggestions. On the whole, the results indicated the acceptance of the third null hypothesis that teachers' contacts with children having both high teacher-rating and high self-rating self-esteem do not differ significantly from their contacts with children having high teacher-rating but low self-rating self-esteem (Figure 11).

To test the fourth hypothesis which stated that teachers' contacts with children having both low teacher-rating and low self-rating self-esteem do not differ significantly from their contacts with children having low teacher-rating but high self-rating self-esteem, mean frequencies of teachers' interactions with the High-Low (HL) group and the Low-Low (LL) group were compared by the Mann-Whitney U test with the results presented in Tables 25a and 25b. As shown in Table 25a, no significant differences were identified in teachers' initiated contacts between children in one self-esteem group and those in the other

Table 24a Differences in mean frequencies (m.f.) of teachers' initiated contacts with the High-High group (HH) and the Low-High group (LH)

Variable	HH (N=6) m.f.	LH (N=8) m.f.	U-value C.R.=11	Significant level
Instructional				
Ask Q	0.0272	0.0163	11.5	p<0.071
G-Inst	0.0392	0.0464	19.0	p<0.286
Total	0.0664	0.0627	24.0	p<0.525
Noninstructional				
Ask Q	0.0053	0.0021	11.0*	p<0.054*
G-Inst	0.0088	0.0075	20.5	p<0.377
Total	0.0142	0.0096	8.0*	p<0.021*
Discipline	0.0074	0.0074	22.5	p<0.475
Grand Total	0.0879	0.0796	22.0	p<0.426

Table 24b Differences in mean frequencies (m.f.) of teachers' responses to the High-High group (HH) and the Low-High group (LH)

Variable	HH (N=6) m.f.	LH (N=8) m.f.	U-value C.R.=11	Significant level
Instructional(+ve)				
Ans P's Q/S/In	0.0213	0.0239	22.0	p<0.426
Ans + Acpt	0.0018	0.0015	22.5	p<0.475
An + Ac + Pr	0.0025	0.0011	14.0	p<0.114
Ans + Cort	0.0100	0.0094	22.5	p<0.475
Total	0.0356	0.0359	22.0	p<0.426
Noninstructional(+ve)				
Ans P's Q/S/In	0.0072	0.0045	21.5	p<0.426
Give permission	0.0029	0.0040	20.0	p<0.331
Total	0.0101	0.0084	21.0	p<0.377
+ve FB Total	0.0457	0.0443	23.0	p<0.475
Instructional(-ve)				
Ignore Q/A/S/C	0.0007	0.0011	18.0	p<0.245
Reject Q/A/S/C	0.0000	0.0003	21.0	p<0.377
Reject + Crit	0.0000	0.0000	24.0	p<0.525
Total	0.0007	0.0014	17.0	p<0.207
Noninstructional(-ve)				
Reject	0.0000	0.0000	24.0	p<0.525
No reaction	0.0007	0.0003	22.5	p<0.475
Total	0.0007	0.0003	22.5	p<0.475
-ve FB Total	0.0014	0.0016	18.0	p<0.245
Grand Total	0.0470	0.0459	23.0	p<0.475

Figure 11 Differences in mean frequencies of teachers' interactions with the High-High group (HH) and the Low-High group (LH)

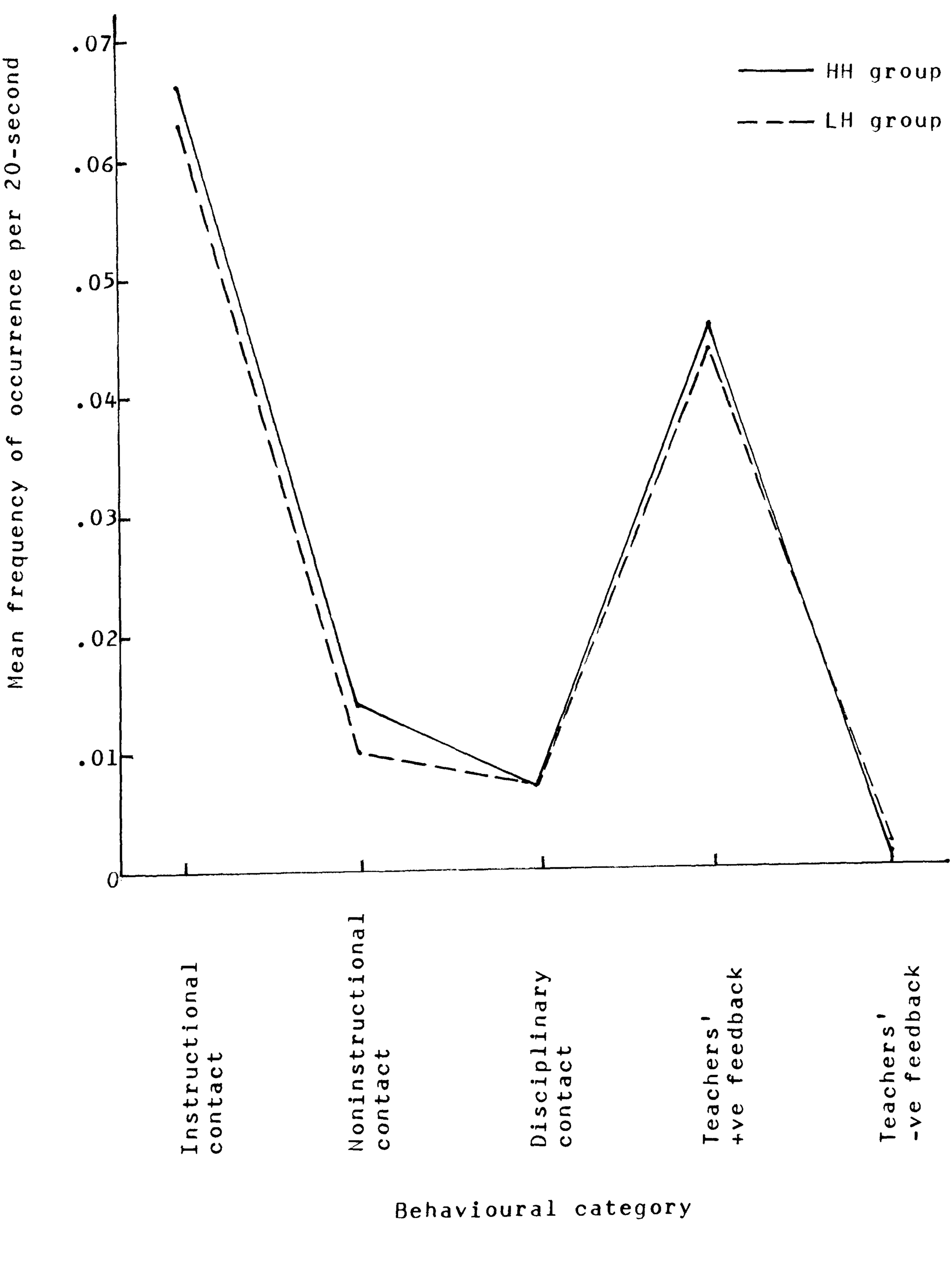


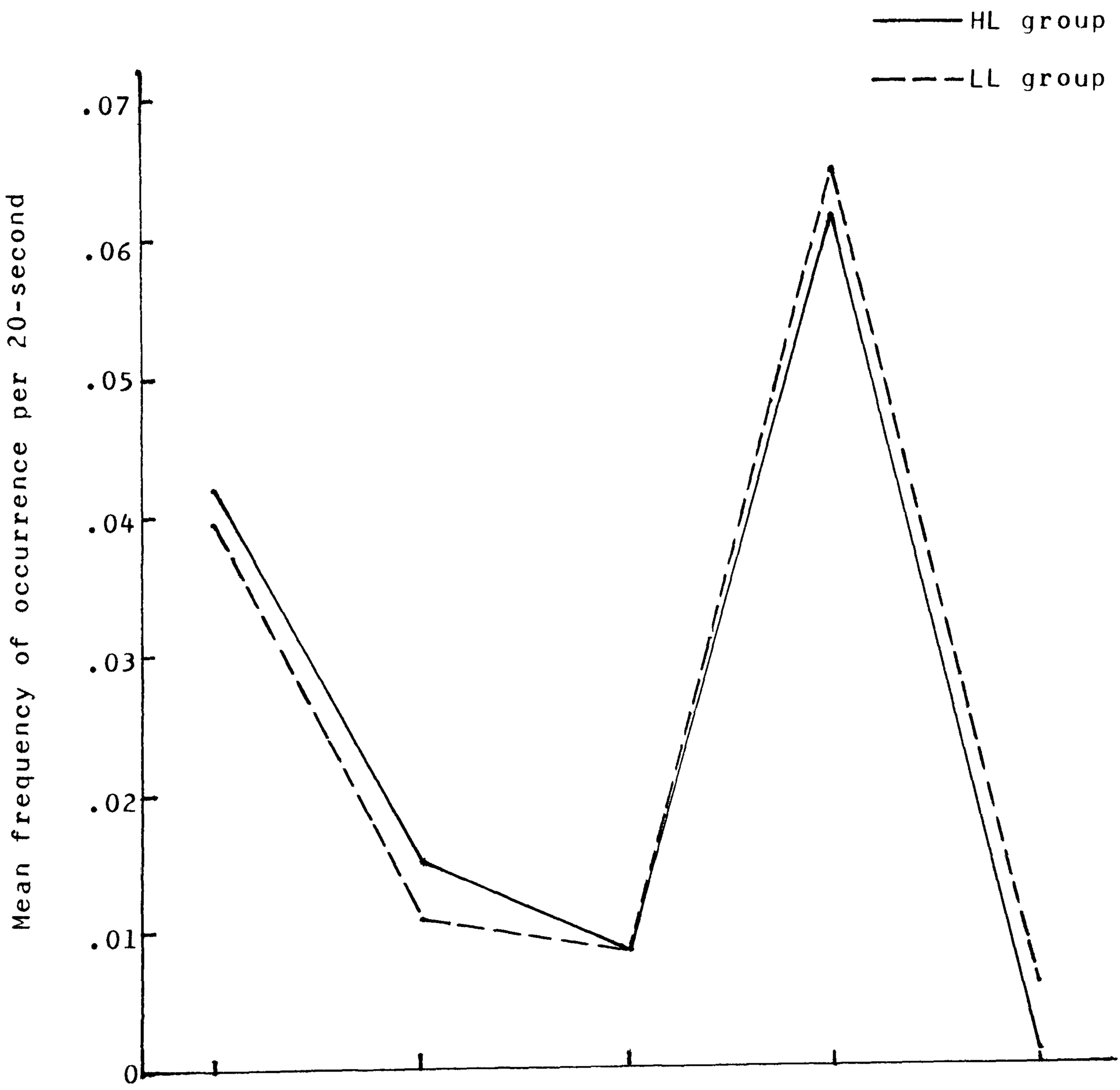
Table 25a Differences in mean frequencies (m.f.) of teachers' initiated contacts with the High-Low group (HL) and the Low-Low group (LL)

Variable	HL (N=8) m.f.	LL (N=7) m.f.	U-value C.R.=13	Significant level
Instructional				
Ask Q	0.0138	0.0140	26.0	p<0.433
G-Inst	0.0286	0.0253	27.0	p<0.478
Total	0.0424	0.0393	28.0	p<0.522
Noninstructional				
Ask Q	0.0027	0.0019	26.0	p<0.433
G-Inst	0.0123	0.0089	19.0	p<0.168
Total	0.0150	0.0108	19.0	p<0.168
Discipline	0.0085	0.0083	23.0	p<0.306
Grand Total	0.0659	0.0584	26.0	p<0.433

Table 25b Differences in mean frequencies (m.f.) of teachers' responses to the High-Low group (HL) and the Low-Low group (LL)

Variable	HL (N=8) m.f.	LL (N=7) m.f.	U-value C.R.=13	Significant level
Instructional(+ve)				
Ans P's Q/S/In	0.0355	0.0349	27.0	p<0.478
Ans + Acpt	0.0021	0.0037	13.5	p<0.060
An + Ac + Pr	0.0016	0.0013	27.5	p<0.522
Ans + Cort	0.0132	0.0175	21.5	p<0.268
Total	0.0523	0.0574	22.5	p<0.306
Noninstructional(+ve)				
Ans P's Q/S/In	0.0074	0.0057	21.0	p<0.232
Give permission	0.0024	0.0019	23.5	p<0.347
Total	0.0098	0.0076	20.0	p<0.198
+ve FB Total	0.0621	0.0651	24.0	p<0.347
Instructional(-ve)				
Ignore Q/A/S/C	0.0005	0.0022	16.0	p<0.095
Reject Q/A/S/C	0.0000	0.0011	20.0	p<0.198
Reject + Crit	0.0000	0.0000	28.0*	p<0.522*
Total	0.0005	0.0033	12.5*	p<0.047*
Noninstructional(-ve)				
Reject	0.0003	0.0010	23.5	p<0.347
No reaction	0.0003	0.0019	14.0	p<0.060
Total	0.0005	0.0029	16.5	p<0.116
-ve FB Total	0.0010	0.0061	12.0*	p<0.036*
Grand Total	0.0631	0.0712	17.5	p<0.140

Figure 12 Differences in mean frequencies of teachers' interactions with the High-Low group (HL) and the Low-Low group (LL)



group. The data in Table 25a, however, revealed that most contacts initiated by teachers were related to the subject matter.

In responding to children's contacts, teachers gave a similar number of responses to the children in the HL and the LL groups (Table 25b; Figure 12). The U-values, however, showed that teachers gave more negative feedback to the children in the LL group than to those children in the HL group, especially in their noninstructional responses. Furthermore, the data illustrated that teachers did not reject and criticise their children's questions, answers, and suggestions which were related to the subject matter. To conclude, the fourth null hypothesis was accepted.

In addition to testing the first four research hypotheses using the Mann-Whitney U test, the last two hypotheses proposing that there is no significant change in children's self-esteem scores and teacher-evaluated self-esteem scores over a period of time was tested by the Friedman two-way analysis of variance. Initially, each subject's self-esteem scores in the three testing sessions[1] were converted into ranks and then the sums of ranks in three testing sessions were treated by the Friedman test.[2] As depicted in Table 26 and Figure 13, the means of each self-esteem group dropped significantly from the first test session to the third test session ($\chi r^2 = 10.21$, $p < .01$). This trend was particularly identified by the mean self-esteem scores of the high self-esteem group (the combination of the High-High and the High-Low groups) ($\chi r^2 = 7.75$, $p < .05$).

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1 Children's self-rating self-esteem scores in three testing sessions are presented in Appendix 5.

2 Example for the calculation of the value of χr^2 using the Friedman test is demonstrated in Appendix 2h.

Table 26 Group means ($\bar{x}$), standard deviations (S.D.), and χr^2 values of the revised Children's Self-Concept Scale computed from the self-esteem scores of different self-esteem groups in three testing sessions (HH = High-High group; HL = High-Low group; High = combination of the HH and HL groups; LL = Low-Low group; LH = Low-High group; Low = combination of the LL and LH groups)

Group	1st test		2nd test		3rd test		χr^2	Significant level
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
HH	22.50	3.59	19.67	4.85	17.83	3.72	4.08	N.S.
HL	20.13	6.15	18.00	2.12	15.75	2.22	3.94	N.S.
High	21.14	5.34	18.71	3.65	16.64	3.13	7.75	$p<0.05$
LL	5.29	2.96	4.86	2.59	3.43	2.56	3.71	N.S.
LH	6.38	2.23	9.13	3.66	7.13	4.14	5.81	N.S.
Low	5.87	2.66	7.13	3.84	5.40	3.95	5.23	N.S.
Total	13.24	8.70	12.72	6.90	10.83	6.66	10.21	$p<0.01$

To determine at which stage the self-esteem scores of children changed significantly, children's self-esteem scores in the first test were compared with their self-esteem scores in the second test by the Wilcoxon matched-pairs signed-ranked test.[1] Similarly, children's self-esteem scores in the second test were compared with their self-esteem scores in the third test. In the Wilcoxon signed-ranks test, both T values and z values revealed that children's self-esteem scores dropped abruptly and significantly from the second-test period to the third-test period (Table 27). With reference to Figure 14, great variation of self-esteem scores was evidenced in the high self-esteem subjects (subject 1-14). To summarise, children's self-esteem scores were significantly changed over a period of time which rejected the fifth hypothesis proposing that there was no significant change in children's self-esteem.

1 Examples for the calculation of the T value and z value are shown in Appendix 2i.

Figure 13 Group means of children's self-esteem scores in three testing sessions
(H.S.E.G. = high self-esteem group; L.S.E.G. = low self-esteem group)

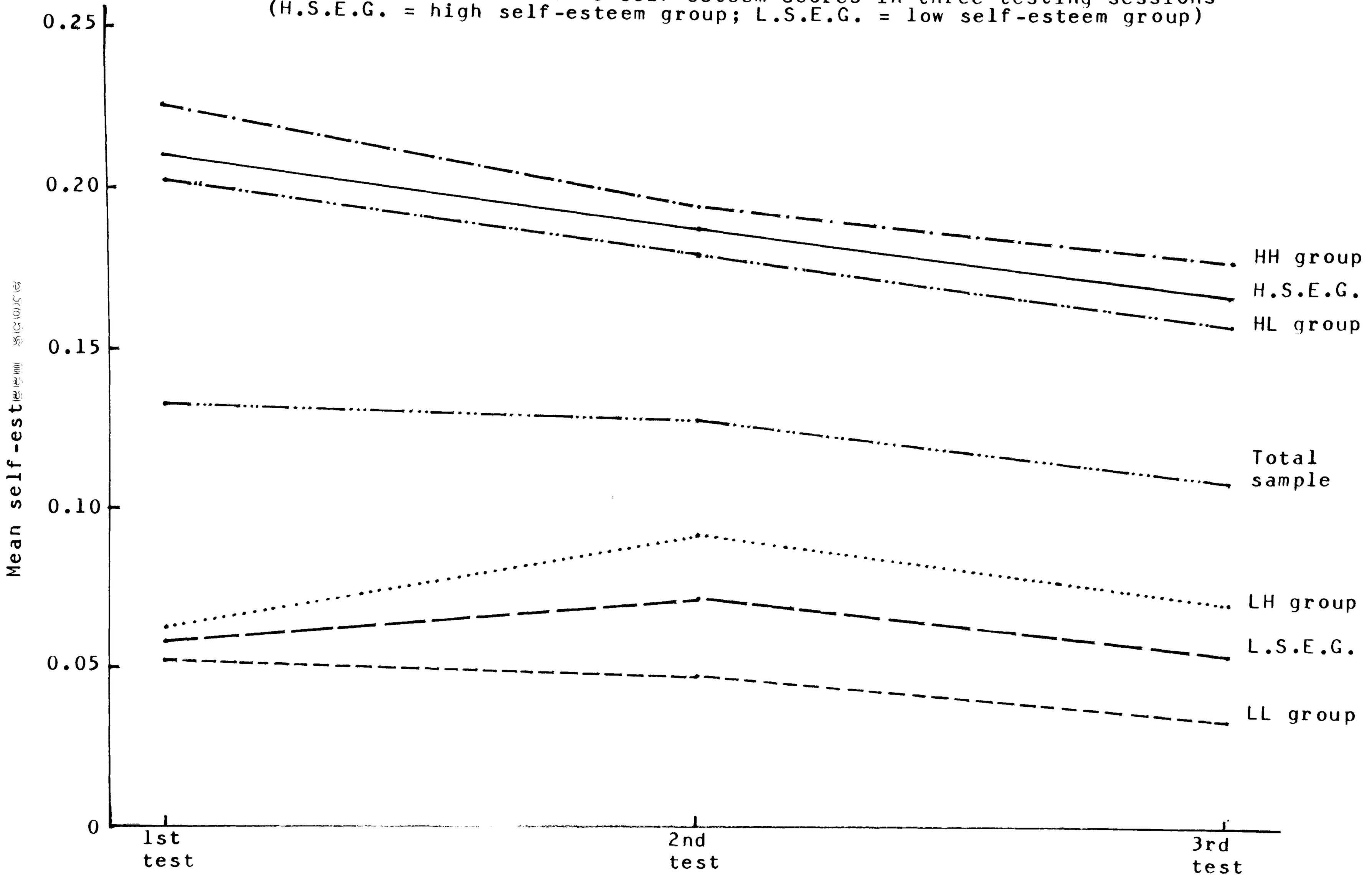


Table 27 Values of T and z calculated from the self-esteem scores of different self-esteem groups in two stages of the main study (HH = High-High group; HL = High-Low group; High = combination of the HH and HL groups; LL = Low-Low group; LH = Low-High group; Low = combination of the LL and LH group; p = level of significance)

	1st stage				2nd stage			
Group	T	p	z	p	T	p	z	p
HH	3.0	N.S.	1.21	0.226	2.5	N.S.	1.35	0.177
HL	6.5	N.S.	0.27	0.787	8.0	N.S.	1.40	0.162
High	16.5	N.S.	1.12	0.263	16.5	0.05	2.03	0.042
LL	7.5	N.S.	0.63	0.529	2.5	N.S.	1.68	0.093
LH	6.0	N.S.	1.68	0.093	2.0	0.05	2.03	0.042
Low	32.0	N.S.	1.29	0.197	8.0	0.01	2.62	0.009
Total	146.0	N.S.	0.11	0.912	4945	0.001	3.20	0.001

The sixth hypothesis was also assessed by the Friedman two-way analysis of variance. Teacher-evaluated self-esteem scores of each student in the three testing sessions were ranked first of all and the sums of ranks in all three testing sessions were used for data analysis.[1] As indicated in Table 28 and Figure 15, the group means of the teacher-evaluated self-esteem scores decreased from the first to the second test session and also from the second to the third test session (except for the High-Low group). The χr^2 values in Table 28, however, revealed that teacher-evaluated self-esteem scores did not change significantly. This trend was also illustrated in Figure 15 in which the group mean of the teacher-evaluated self-esteem scores for the total sample dropped slightly but nonsignificantly from the first-test session to the third-test session.

1 Teacher-evaluated self-esteem scores of their children in three assessment periods are presented in Appendix 5.

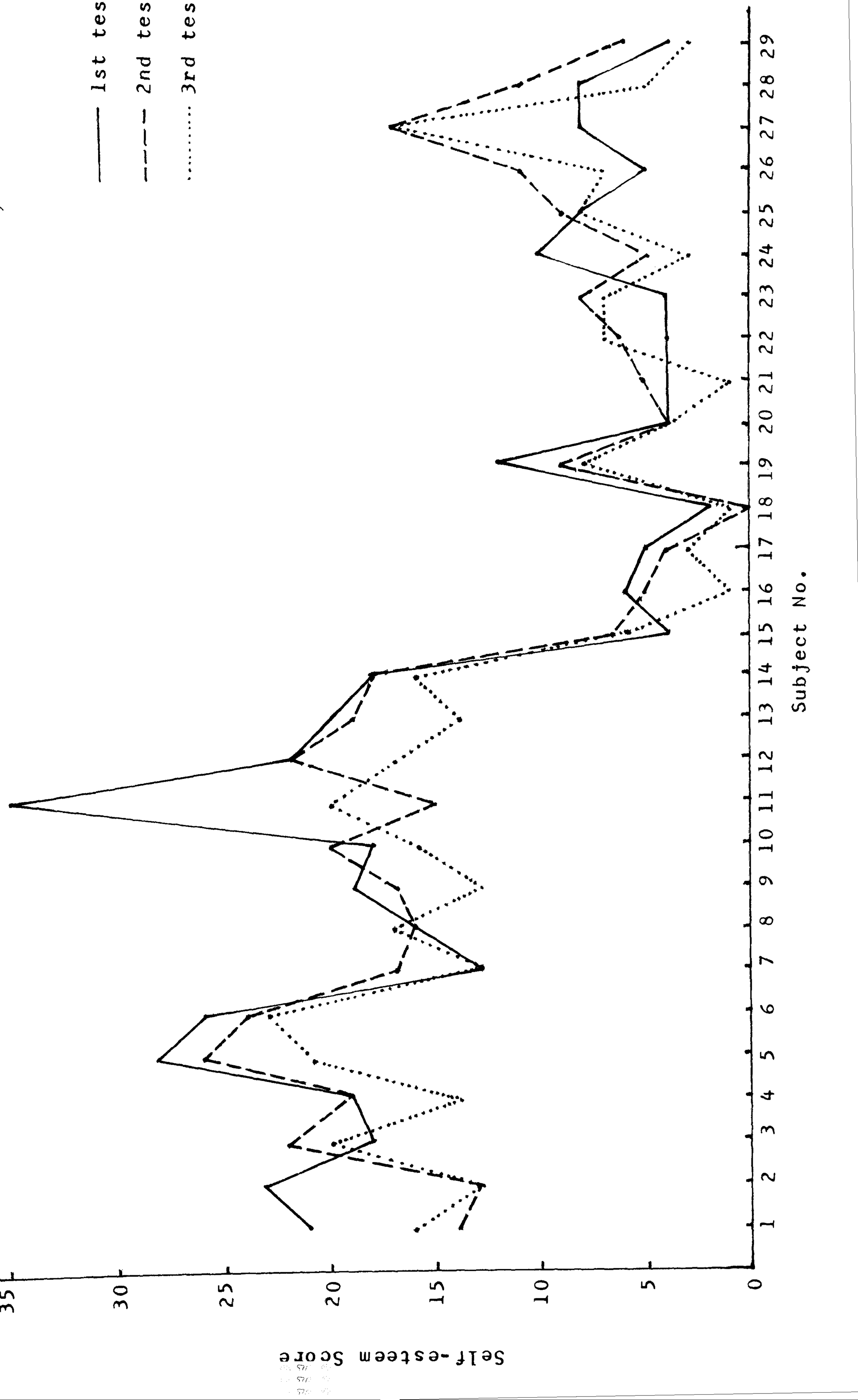


Figure 14 Children's self-rating self-esteem scores in three testing sessions

Table 28 Group means ($\bar{x}$), standard deviations (S.D.), and χr^2 values of the revised Children's Self-Concept Scale computed from the self-esteem scores of different teacher-evaluated groups in three testing sessions (HH = Higv-High group; LH = Low-High group; High = combination of the HH and LH groups; LL = Low-Low group; HL = High-Low group; Low = combination of the LL and HL groups)

Group	1st test		2nd test		3rd test			Significant level
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.	χr^2	
HH	19.33	3.73	15.33	8.36	15.17	6.15	0.58	N.S.
LH	15.88	2.20	12.63	4.24	12.00	5.74	3.25	N.S.
High	17.36	3.41	13.79	6.48	13.36	6.13	3.46	N.S.
LL	3.57	2.72	3.43	2.32	2.86	1.96	0.50	N.S.
HL	4.75	1.92	6.13	3.72	5.75	2.22	0.25	N.S.
Low	4.20	2.40	4.87	3.42	4.40	2.55	0.03	N.S.
Total	10.55	7.20	9.17	6.80	8.72	6.44	1.78	N.S.

As a check, Wilcoxon signed-ranked test was used to compare teacher-evaluated self-esteem scores in the first-test session with those in the second-test session and to determine the differences between teacher-evaluated self-esteem scores in the second-test session and those in the third-test session. Both T values and z values presented in Table 29 showed that teacher-evaluated self-esteem scores of the four self-esteem groups did not change significantly from the first-test session to the second-test session and also from the second-test session to the third-test session, except a significant change was identified in the teacher-evaluated self-esteem scores of the high teacher-evaluated group from the first-test session to the second-test session (T value = 13, $p<.02$; z value = 2.27, $p<.02$). This trend was further evidenced in Figure 16 in which considerable variation of teacher-evaluated self-esteem scores was illustrated in the high teacher-evaluated group (subjects 1-6 and 22-29).

Figure 15 Group means of teacher-evaluated self-esteem scores in three testing sessions (H.T.E.G. = high teacher-evaluated group; L.T.E.G. = low teacher-evaluated group)

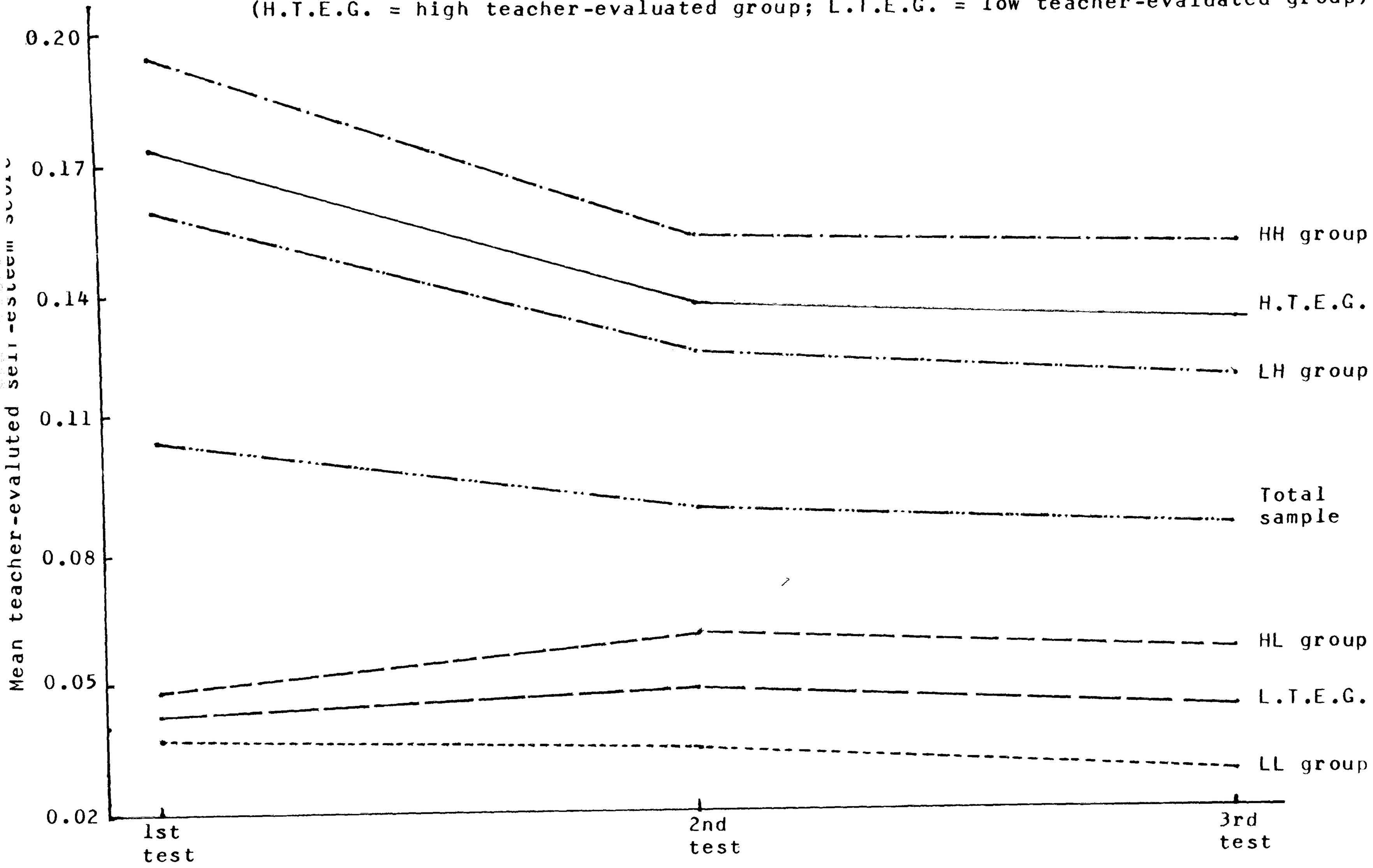


Table 29 Values of T and z calculated from the self-esteem scores of different teacher-evaluated groups in two stages of the main study (HH = High-High group; LH = Low-High group; High = combination of the HH and LH groups; LL = Low-Low group; HL = High-Low group; Low = combination of the LL and HL groups; p = level of significance)

	1st stage				2nd stage			
Group	T	p	z	p	T	p	z	p
HH	3.0	N.S.	1.21	0.226	9.5	N.S.	0.21	0.834
LH	5.0	N.S.	1.82	0.069	12.0	N.S.	0.84	0.401
High	13.0	0.02	2.27	0.023	48.5	N.S.	0.25	0.803
LL	9.5	N.S.	0.21	0.834	4.0	N.S.	0.94	0.347
HL	13.0	N.S.	0.70	0.484	16.5	N.S.	0.21	0.834
Low	47.5	N.S.	0.31	0.757	38.0	N.S.	0.52	0.603
Total	127.5	N.S.	1.48	0.139	162.5	N.S.	0.64	0.522

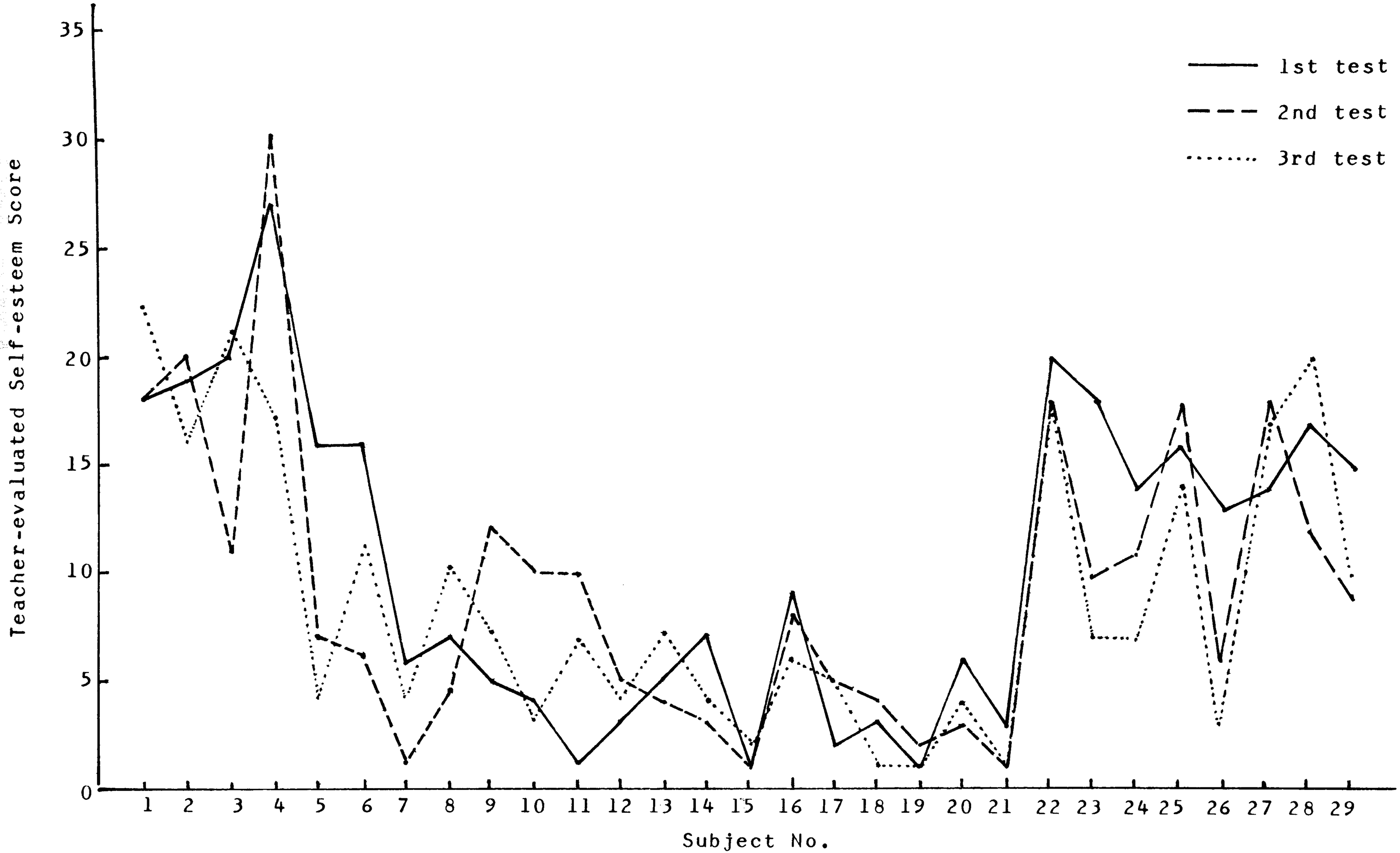
Overall, the results supported the sixth hypothesis assuming that there is no significant change in teacher-evaluated self-esteem scores of their children.

B. Exploration of Research Questions

In addition to testing the six research hypotheses, seven research questions were framed for a further exploration of the self-esteem of mentally-handicapped children. Since data were gathered from different sources and methods, several types of statistical analyses were performed on the core set of variables.

Nowadays, studies on sex differences in self-esteem have produced an equally varied set of results (Wylie, 1979). Perhaps the most frequent findings is an absence of statistically significant sex differences in self-reported self-esteem (Friedman, Rogers, and Gettys, 1975; Simon and Simon, 1975; Vance and Richmond, 1975). A few studies, however, have found

Figure 16 Teacher-evaluated self-esteem scores in three testing sessions



females scoring significantly higher than males (Baum et al., 1970; Bledsoe, 1967; Campbell, 1966). In some cases, either in the whole sample or in a subsample, males score higher than females (Fien, O'Neill, Frank, and Velit, 1975; Good and Good, 1975; Loeb and Horst, 1978; Whittaker, 1973). In the field of mental retardation, sex differences in self-esteem have not been fully investigated, therefore one prime purpose of this study was to examine this difference. To determine whether or not the mentally-handicapped boys differed significantly from the mentally-handicapped girls in responding to the self-esteem inventory, t-tests were performed on the mean self-esteem scores of both sexes. As shown in Table 30, no significant differences were found between boys and girls in responding to the self-esteem inventory.

Table 30 Differences in mean scores ($\bar{x}$) between boys and girls in responding to the revised Children's Self-Concept Scale in the main study (S.D. = standard deviation)

Sex	Age	N	$\bar{x}$	S.D.	t-value	Significant level
Boy	12	44	11.27	6.23	0.53	N.S.
Girl	12	18	10.33	6.43		
Boy	11	57	12.28	6.18	1.31	N.S.
Girl	11	30	13.93	5.28		
Boy	10	64	13.42	6.09	0.82	N.S.
Girl	10	37	12.27	7.18		
Boy	10-12	165	12.45	6.22	0.01	N.S.
Girl	10-12	85	12.45	6.54		

As an analysis based on the summation scores could distort the findings (Wylie, 1979, p. 272), item analyses of the self-esteem inventory, done separately by sex, were carried out. With reference to Table 31, the results revealed that the mentally-handicapped boys differed from the mentally-handicapped girls in responding to four items of the scale. The t-values showed that boys had higher mean self-esteem scores on item 16 (I often get into trouble) and item 27 (I get into lots of fights) whereas girls obtained significantly higher mean scores on item 8 (I give up easily) and item 35 (I am often afraid) (Table 31 and Figure 17).

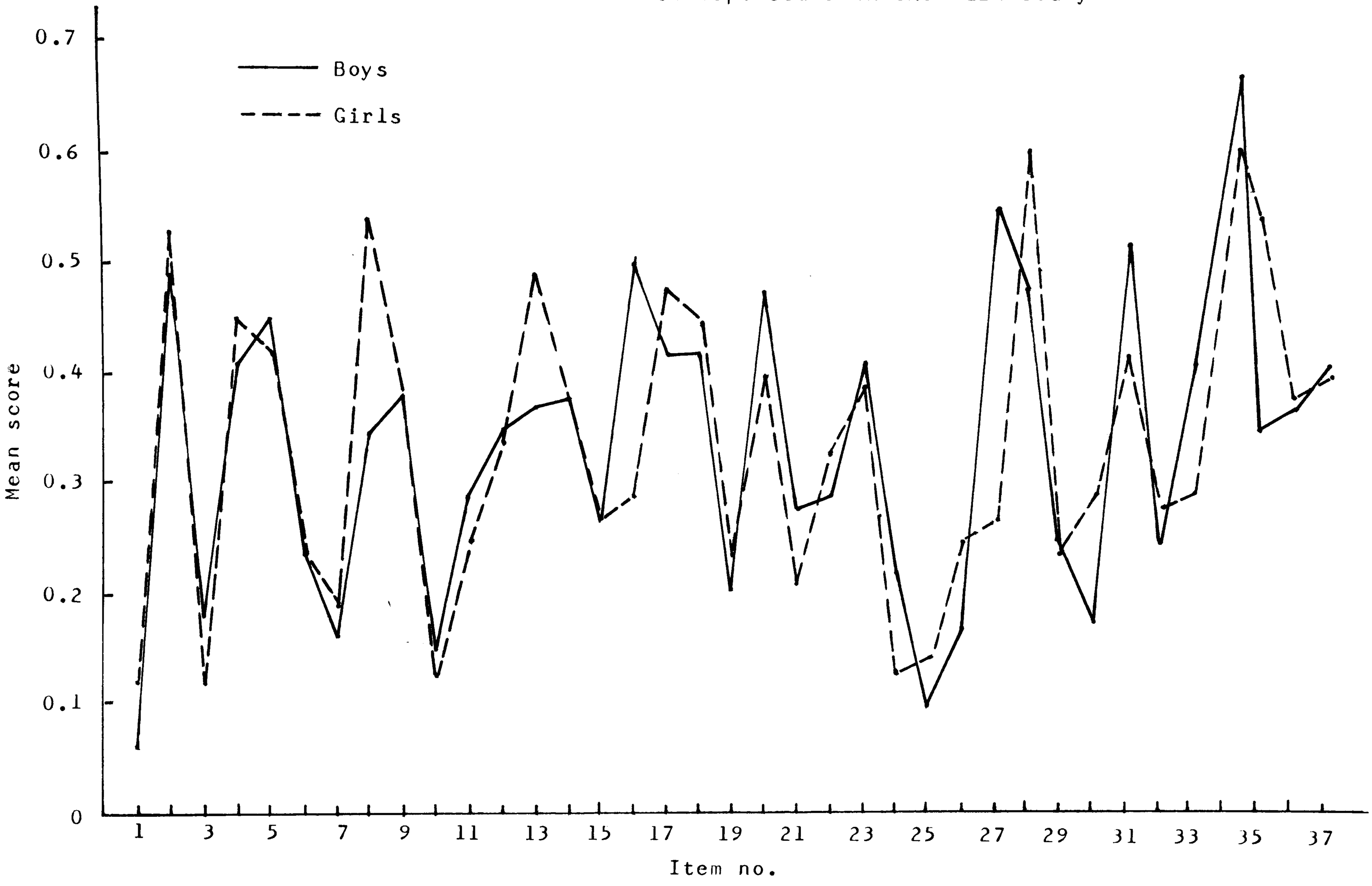
In general, studies focusing on the relationship between classroom behaviour and self-concept illustrate that children with low self-concept exhibit bad work habits and display more disruptive behaviour than children with high self-concept (Cenname, 1977; Shiffler, Saver, and Nadelman, 1977; Yeger and Miezitis, 1980). Thus, it may assume that the low self-esteem children are more "off-task" in the classroom and, even though they are "on-task", they spend more time on activities not related to the subject matter. To test the above assumption, classroom observational data of the high self-esteem group (the combination of the High-High and the High-Low groups) and of the low self-esteem group (the combination of the Low-Low and the Low-High groups) were treated by the Mann-Whitney U test.

Surprisingly, the results shown in Table 32 revealed no significant differences between the high self-esteem group and the low self-esteem group in "on-task" and "off-task" behaviours (Figure 18). Both self-esteem groups had almost the same rate of "on-task" behaviour as "off-task" behaviour. Also, the mean frequencies of classroom behaviour illustrated that both

Table 31 Differences in mean scores ($\bar{x}$) between boys and girls in responding to each item of the revised Children's Self-Concept Scale in the main study (σ^2 = variance)

Item No.	Boys (N = 165) $\bar{x}$	Boys (N = 165) σ^2	Girls (N = 85) $\bar{x}$	Girls (N = 85) σ^2	t-value	Significant level
1	0.06	0.06	0.12	0.10	1.44	N.S.
2	0.49	0.25	0.53	0.25	0.58	N.S.
3	0.18	0.15	0.12	0.10	1.27	N.S.
4	0.41	0.24	0.45	0.25	0.62	N.S.
5	0.45	0.25	0.42	0.24	0.47	N.S.
6	0.24	0.18	0.24	0.18	0.02	N.S.
7	0.16	0.14	0.19	0.15	0.48	N.S.
8	0.35	0.23	0.54	0.25	2.89	$p<0.01$
9	0.38	0.23	0.36	0.23	0.17	N.S.
10	0.15	0.12	0.13	0.11	0.35	N.S.
11	0.29	0.21	0.25	0.19	0.75	N.S.
12	0.35	0.23	0.34	0.22	0.07	N.S.
13	0.37	0.23	0.49	0.25	1.89	N.S.
14	0.38	0.24	0.38	0.23	0.08	N.S.
15	0.27	0.20	0.27	0.20	0.04	N.S.
16	0.50	0.25	0.29	0.21	3.32	$p<0.001$
17	0.42	0.24	0.48	0.25	0.88	N.S.
18	0.42	0.24	0.45	0.25	0.35	N.S.
19	0.21	0.17	0.24	0.18	0.41	N.S.
20	0.47	0.25	0.40	0.24	1.01	N.S.
21	0.28	0.20	0.21	0.17	1.29	N.S.
22	0.29	0.21	0.33	0.22	0.62	N.S.
23	0.41	0.24	0.39	0.24	0.37	N.S.
24	0.22	0.17	0.13	0.11	1.83	N.S.
25	0.10	0.09	0.14	0.12	1.00	N.S.
26	0.17	0.14	0.25	0.19	1.40	N.S.
27	0.55	0.25	0.27	0.20	4.45	$p<0.001$
28	0.48	0.25	0.60	0.24	1.84	N.S.
29	0.25	0.19	0.24	0.18	0.23	N.S.
30	0.18	0.15	0.29	0.21	1.94	N.S.
31	0.52	0.25	0.42	0.24	1.38	N.S.
32	0.25	0.19	0.28	0.20	0.47	N.S.
33	0.41	0.24	0.29	0.21	1.89	N.S.
34	0.67	0.22	0.60	0.24	1.13	N.S.
35	0.35	0.23	0.54	0.25	2.99	$p<0.01$
36	0.37	0.23	0.38	0.23	0.11	N.S.
37	0.41	0.24	0.40	0.24	0.09	N.S.

Figure 17 Differences in mean scores between boys and girls in responding to each item of the revised Children's Self-Concept Scale in the main study



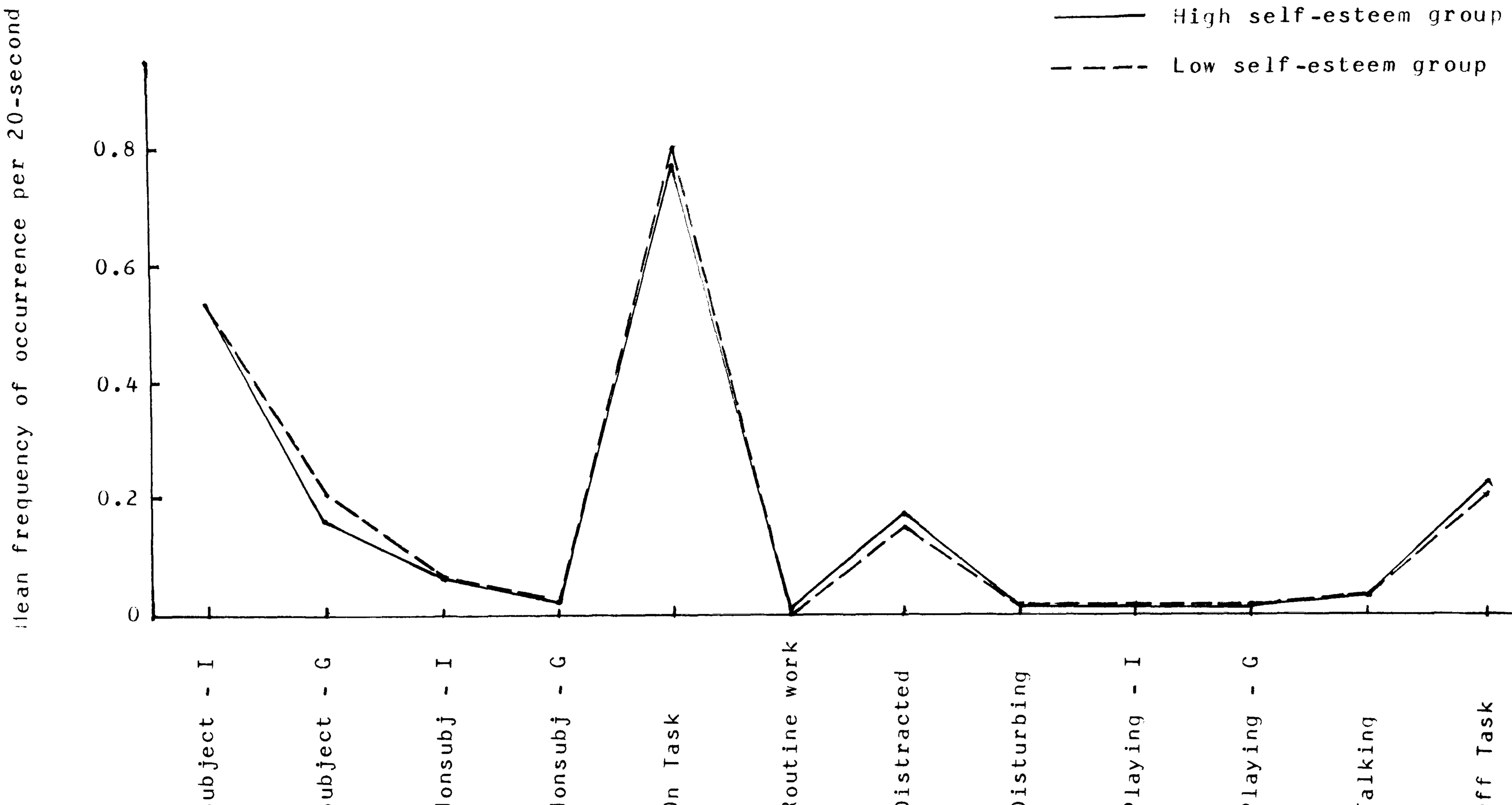
self-esteem groups spent almost three quarter of the observational time on "on-task" activities. Furthermore, subjects of each self-esteem group spent most of their time on subject matter and worked independently. Finally, the observational data showed that most of the subjects were distracted in the classroom either by day-dreaming or watching other pupils working.

Table 32 Differences in mean frequencies (m.f.) of "on-task" and "off-task" behaviours between the high self-esteem group (H.S.E.G.) and the low self-esteem group (L.S.E.G.)

	Variable	H.S.E.G. m.f.	L.S.E.G. m.f.	U-value C.R.=59	Significant level
On Task	Subject - I	0.5297	0.5260	91.0	N.S.
	Subject - G	0.1642	0.1970	71.0	N.S.
	Nonsubj - I	0.0592	0.0578	104.0	N.S.
	Nonsubj - G	0.0163	0.0172	96.5	N.S.
	Total	0.7693	0.7980	105.0	N.S.
Off Task	Routine work	0.0074	0.0042	93.0	N.S.
	Distracted	0.1668	0.1506	99.0	N.S.
	Disturbing	0.0088	0.0066	90.5	N.S.
	Playing - I	0.0128	0.0063	69.0	N.S.
	Playing - G	0.0063	0.0076	104.5	N.S.
	Talking	0.0286	0.0266	103.5	N.S.
	Total	0.2307	0.2020	105.0	N.S.

Theoretically, it is often suggested that an individual's behaviour is guided and directed by how he perceives himself, i.e., his self-concept or self-esteem (Mead, 1934; Rogers, 1951; Snygg and Combs, 1949). Therefore, it may be proposed that high self-esteem children behave differently from low self-esteem children in their interactions with teachers. To examine how the high self-esteem children differ from the low self-esteem children in their contacts with class teachers, the subjects in

Figure 18 Differences in mean frequencies of "on-task" and "off-task" behaviours between the high self-esteem group and the low self-esteem group



the High-High group were combined with those in the High-Low group to form the high self-esteem group. In the same way, the children in the Low-Low group were added to those of the Low-High group to form the low self-esteem group. Then, the mean frequency of occurrence for each behavioural category of the high self-esteem group was compared with that of the low self-esteem group by the Mann-Whitney U test. As depicted in Table 33a and Table 33b, no significant differences were observed between the high self-esteem group and the low self-esteem group in their interactions with class teachers.

In initiating contacts with their teachers, children in both self-esteem groups made more instructional contacts than the noninstructional contacts (Table 33a and Figure 19). Also, they usually responded positively to their teachers' contacts. Although no significant differences were detected in their instructional contacts with teachers, the data indicated that the low self-esteem group initiated more contacts with their teachers for correcting their exercises and waiting for instruction than did the high self-esteem group. Taken together, the data indicated that the high self-esteem children did not differ from the low self-esteem children in their contacts with teachers. Although children with different levels of self-esteem may exhibit different interactive behaviour, yet no significant differences were found in the present study.

Studies have demonstrated that teachers' interactions with a child in the classroom are mainly affected by how he or she perceives that child, i.e., his or her expectation or evaluation of the child (Brophy and Good, 1974; Brophy and Everston, 1981; Good, 1983; Rogers, 1982). Most of these studies, however, only concentrate on the effects of teachers' perceptions or evaluation

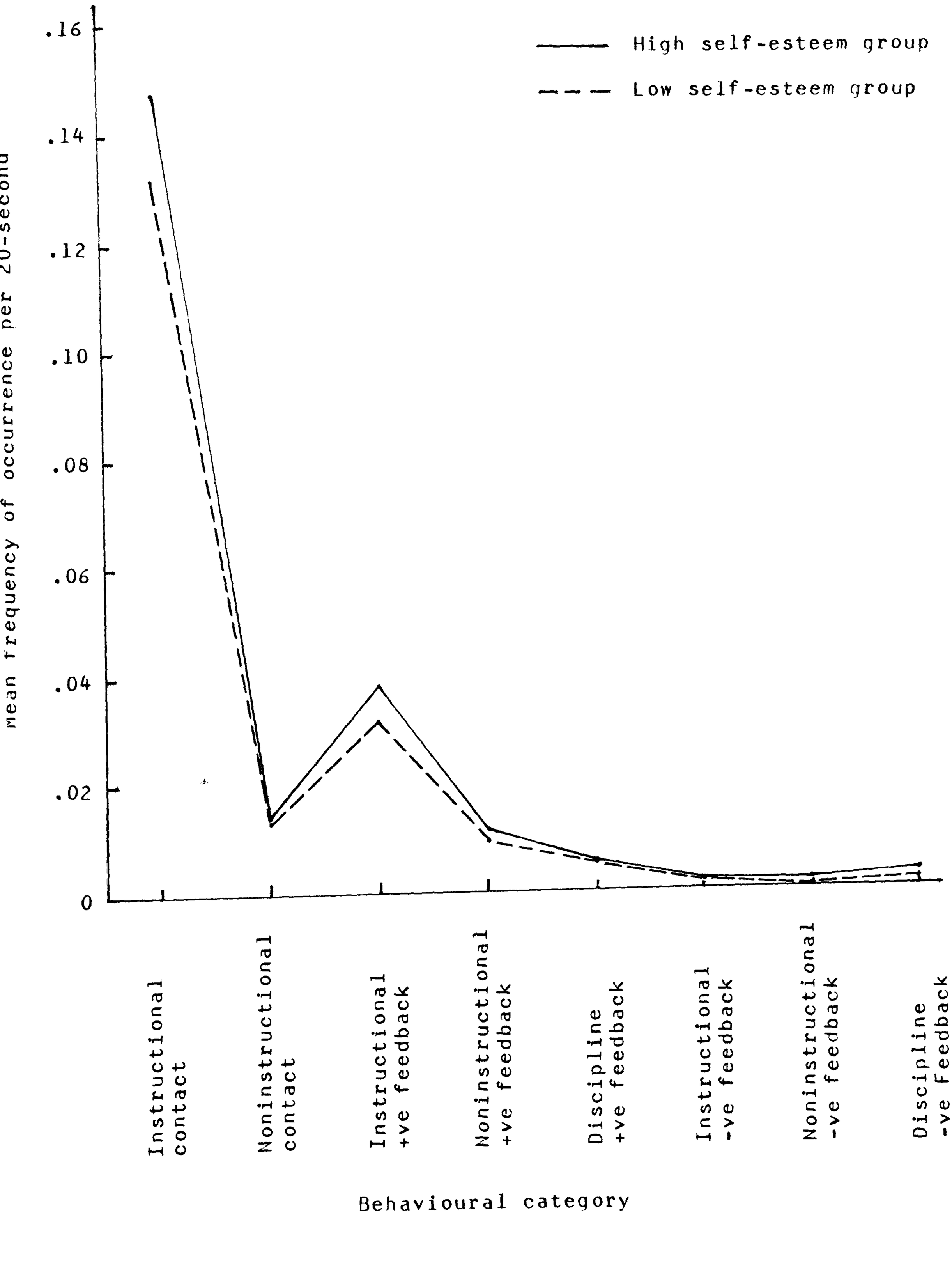
Table 33a Differences in mean frequencies (m.f.) of initiated contacts with teachers between the high self-esteem group (H.S.E.G.) and the low self-esteem group (L.S.E.G.)

Variable	H.S.E.G. (N=14) m.f.	L.S.E.G. (N=15) m.f.	U-value C.R.=59	Significant level
Instructional				
Ask Q	0.0175	0.0173	103.0	N.S.
Ans Q	0.0161	0.0136	90.5	N.S.
Give S/In	0.0136	0.0144	97.0	N.S.
Wait C/I	0.0847	0.1015	89.5	N.S.
Total	0.1319	0.1468	85.5	N.S.
Noninstructional				
Ask Q	0.0065	0.0043	87.0	N.S.
Rou-W	0.0035	0.0038	97.5	N.S.
Give S/In	0.0045	0.0056	99.5	N.S.
Total	0.0145	0.0137	102.5	N.S.
Grand Total	0.1465	0.1605	88.0	N.S.

Table 33b Differences in mean frequencies (m.f.) of responses to teachers' contacts between the high self-esteem group (H.S.E.G.) and the low self-esteem group (L.S.E.G.)

Variable	H.S.E.G. (N=14) m.f.	L.S.E.G. (N=15) m.f.	U-value C.R.=59	Significant level
Instructional(+ve)				
Ans T's Q	0.0182	0.0140	81.0	N.S.
Follow Inst	0.0196	0.0171	98.0	N.S.
Total	0.0378	0.0311	101.5	N.S.
Noninstructional(+ve)				
Ans T's Q	0.0034	0.0021	84.0	N.S.
Follow Inst	0.0078	0.0064	94.5	N.S.
Total	0.0111	0.0085	77.0	N.S.
Discipline(+ve)				
Show response	0.0047	0.0054	92.0	N.S.
+ve FB Total	0.0537	0.0450	88.5	N.S.
Instructional(-ve)	0.0005	0.0009	80.0	N.S.
Noninstructional(-ve)	0.0010	0.0000	75.0	N.S.
Discipline(-ve)	0.0024	0.0011	102.0	N.S.
-ve FB Total	0.0039	0.0020	97.0	N.S.
Grand Total	0.0576	0.0470	89.0	N.S.

Figure 19 Differences in mean frequencies of interactions with teachers between the high self-esteem group and the low self-esteem group



of their students' academic ability on their interactions with the students. Very little research has dealt with the effects of teachers' evaluation of children's self-esteem on their contacts with students. Therefore, the fifth research question in the study was to investigate the differences of teachers' contacts with the high teacher-evaluated children in terms of their self-esteem and the low teacher-evaluated children.

Initially, children of the High-High group were combined with the children in the Low-High group to form the high teacher-evaluated group. Similarly, the children in the Low-Low group were grouped with the children in the High-Low group to form the low teacher-evaluated group. Mean frequency of occurrence for each behavioural category of the high teacher-evaluated group was compared with that of the low teacher-evaluated group by the Mann-Whitney U test with the results shown in Tables 34a and 34b.

As revealed by the U-values in Table 34a, no significant differences were observed in teachers' total initiated contacts with the high teacher-evaluated group and the low teacher-evaluated group. Although no significant differences were detected in teachers' total initiated contacts with the two teacher-evaluated groups, the data showed that teachers made more instructional contacts with the high teacher-evaluated group than with the low teacher-evaluated group (Figure 20). In responding to children's initiated contacts, teachers responded more to the low teacher-evaluated children than to the high teacher-evaluated children ($U = 50$, $p<.02$). Especially, teachers gave more positive feedback to the low teacher-evaluated group when the children of this group asked instructional questions. The observational data also revealed that, although statistically non-significant,

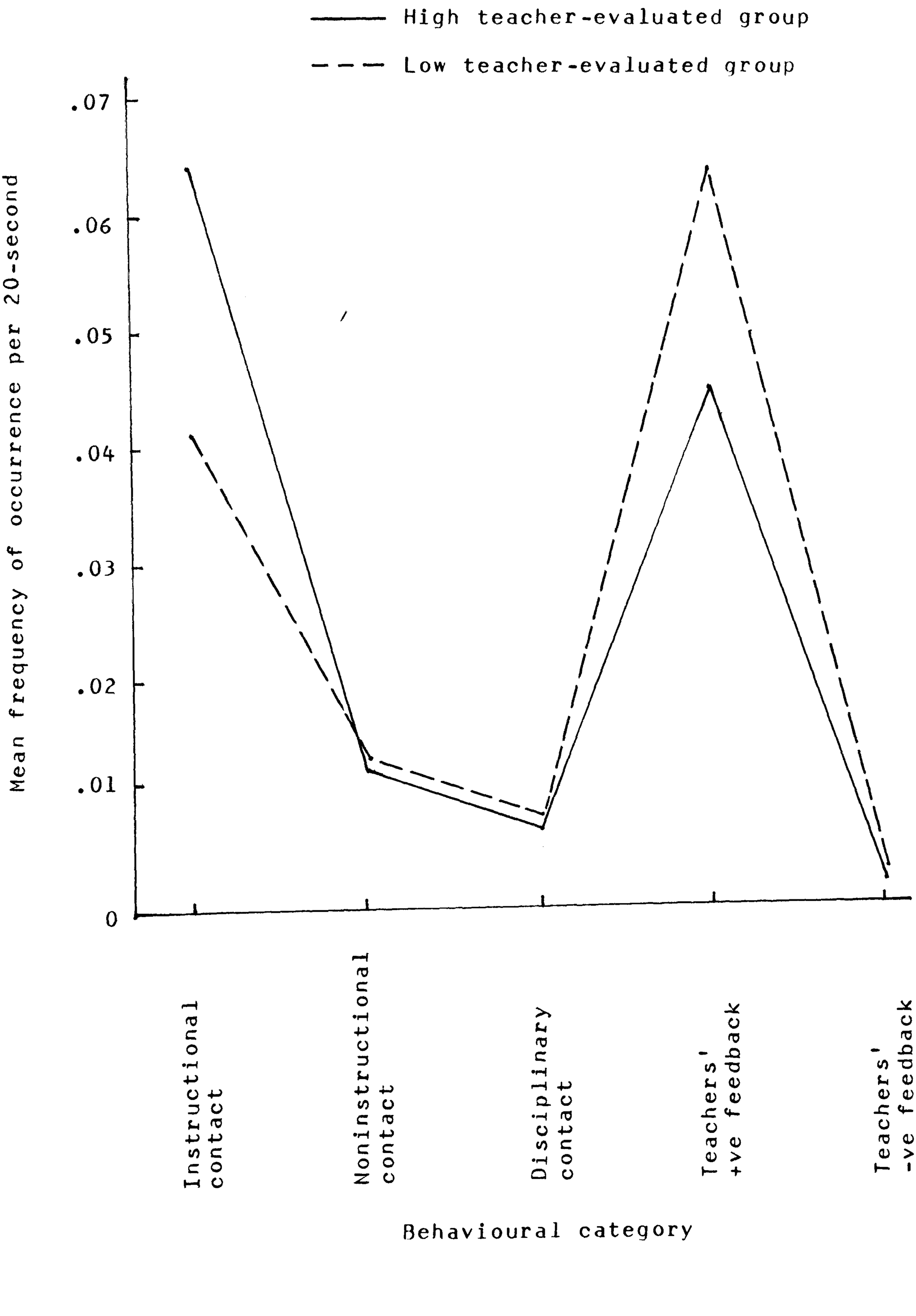
Table 34a Differences in mean frequencies (m.f.) of teachers' initiated contacts with the high teacher-evaluated group (H.T.E.G.) and the low teacher-evaluated group (L.T.E.G.)

Variable	H.T.E.G. (N=14) m.f.	L.T.E.G. (N=15) m.f.	U-value C.R.=59	Significant level
Instructional				
Ask Q	0.0209	0.0139	70.5	N.S.
G-Inst	0.0433	0.0271	61.0*	N.S.
Total	0.0643	0.0410	59.0*	p<0.05*
Noninstructional				
Ask Q	0.0035	0.0023	82.0	N.S.
G-Inst	0.0081	0.0107	93.5	N.S.
Total	0.0116	0.0130	99.0	N.S.
Discipline	0.0074	0.0084	97.0	N.S.
Grand Total	0.0832	0.0624	67.0	N.S.

Table 34b Differences in mean frequencies (m.f.) of teachers' responses to the high teacher-evaluated group (H.T.E.G.) and the low teacher-evaluated group (L.T.E.G.)

Variable	H.T.E.G. (N=14) m.f.	L.T.E.G. (N=15) m.f.	U-value C.R.=59	Significant level
Instructional(+ve)				
Ans P8s Q/S/In	0.0228	0.0352	47.0*	p<0.02*
Ans + Acpt	0.0016	0.0028	75.0	N.S.
An + Ac + Pr	0.0017	0.0014	101.0	N.S.
Ans + Cort	0.0096	0.0152	80.5*	N.S.
Total	0.0358	0.0547	50.0*	p<0.02*
Noninstructional(+ve)				
Ans P's Q/S/In	0.0056	0.0066	72.5	N.S.
Give permission	0.0035	0.0022	89.5	N.S.
Total	0.0091	0.0088	102.0	N.S.
+ve FB Total	0.0449	0.0635	50.0*	p<0.02*
Instructional(-ve)				
Ignore Q/A/S/C	0.0009	0.0013	101.5	N.S.
Reject Q/A/S/C	0.0002	0.0005	97.5	N.S.
Reject + Crit	0.0000	0.0000	105.0	N.S.
Total	0.0011	0.0018	97.0	N.S.
Noninstructional(-ve)				
Reject	0.0000	0.0006	84.0	N.S.
No reaction	0.0004	0.0010	85.0	N.S.
Total	0.0004	0.0016	77.0	N.S.
-ve FB Total	0.0015	0.0034	83.5	N.S.
Grand Total	0.0464	0.0669	50.0*	p<0.02*

Figure 20 Differences in mean frequencies of teachers' interactions with the high teacher-evaluated group and the low teacher-evaluated group



teachers gave more rejection and showed less reaction to the noninstructional requests of the low teacher-evaluated group. In summary, teachers tended to react to and interact with the high teacher-evaluated subjects and the low teacher-evaluated subjects in a different way.

Both research and literature on teacher expectancies suggest that children's ethnicity, sex, social class, physical attractiveness, neatness, and language characteristics can all influence teacher's expectation (Brophy and Everston, 1981; Brophy and Good, 1974; Larsen, 1975; Schlosser and Algozzine, 1980). In addition to the above mentioned variables, children's behaviour or misbehaviour (Willis and Brophy, 1974), the deviancy or disability labels (Algozzine, Mercer, and Countermine, 1977; Gibbons, 1981; Katz, 1981; Reschly and Lamprecht, 1979), and the prior information of the children (Safran, Safran, and Orlansky, 1982) may also affect teachers' evaluations of their students. Thus, the fifth research question was set to discover the relationships between teacher-evaluated self-esteem scores and the scores of children in the reading test, the anxiety scale, and the behaviour questionnaire. Product-moment correlation coefficients were calculated between teacher-evaluated self-esteem scores and children's scores in the reading test, the anxiety scale, and the behaviour questionnaire. As revealed in Table 35, on the whole, teacher-evaluated self-esteem scores were positively and significantly related to the behavioural scores of children ($r = 0.658$, $p<0.001$) but negatively related to the children's reading scores ($r = -0.239$, $p<0.01$). The product-moment correlation coefficient, however, indicated that no overall relationship existed between children's anxiety scores and their self-esteem scores evaluated by teachers

(r = -0.056, N.S.), except girls' anxiety scores were negatively and significantly related to teacher-evaluated self-esteem scores (r = -0.313, p<0.01).

Table 35 Correlations between teacher-evaluated self-esteem scores and children's scores in the reading test, the anxiety scale, and the behaviour questionnaire (B = boys; G = girls; p = significant level)

Age & Sex	N	Reading Scores	p	Anxiety Scores	p	Behavioural Scores	p
12 (B)	44	-0.223	0.05	0.097	N.S.	0.536	0.001
12 (G)	18	-0.014	N.S.	-0.310	0.01	0.640	0.001
12 (B + G)	62	-0.148	N.S.	-0.007	N.S.	0.569	0.001
11 (B)	56	-0.298	0.01	0.132	N.S.	0.685	0.001
11 (G)	28	-0.332	0.001	-0.327	0.01	0.391	0.001
11 (B + G)	84	-0.315	0.01	0.008	N.S.	0.621	0.001
10 (B)	54	-0.210	0.05	-0.020	N.S.	0.626	0.001
10 (G)	34	-0.300	0.01	-0.261	0.01	0.845	0.001
10 (B + G)	88	-0.290	0.01	-0.108	N.S.	0.726	0.001
Boys	154	-0.254	0.01	0.057	N.S.	0.629	0.001
Girls	80	-0.186	N.S.	-0.313	0.01	0.711	0.001
Total	234	-0.239	0.01	-0.056	N.S.	0.658	0.001

The sixth research question of the study was "In what ways do the high self-esteem children score differently from the low self-esteem children on the self-esteem inventory, teachers' evaluation of children's self-esteem, anxiety scale, reading test, and behaviour questionnaire?" At first, the self-esteem scores of two hundred and fifty children were arranged from the highest to the lowest and the mean score was calculated. Since the calculated mean score was 12.45, therefore children having the self-esteem score above the mean were placed in the high

self-esteem group and those children having the self-esteem score below the mean were placed in the low self-esteem group. In order to obtain a more promising result, the upper- and lower-thirds method was adopted to examine the differences between the two self-esteem groups in responding to different instruments. Consequently, eighty children with the self-esteem score of 15 or over were assigned to the upper-third group and seventy-nine children with the self-esteem score of 9 or below were assigned to the lower-third group.[1] Means, standard deviations, and t-values of the two self-esteem groups for the different measures are presented in Table 36.

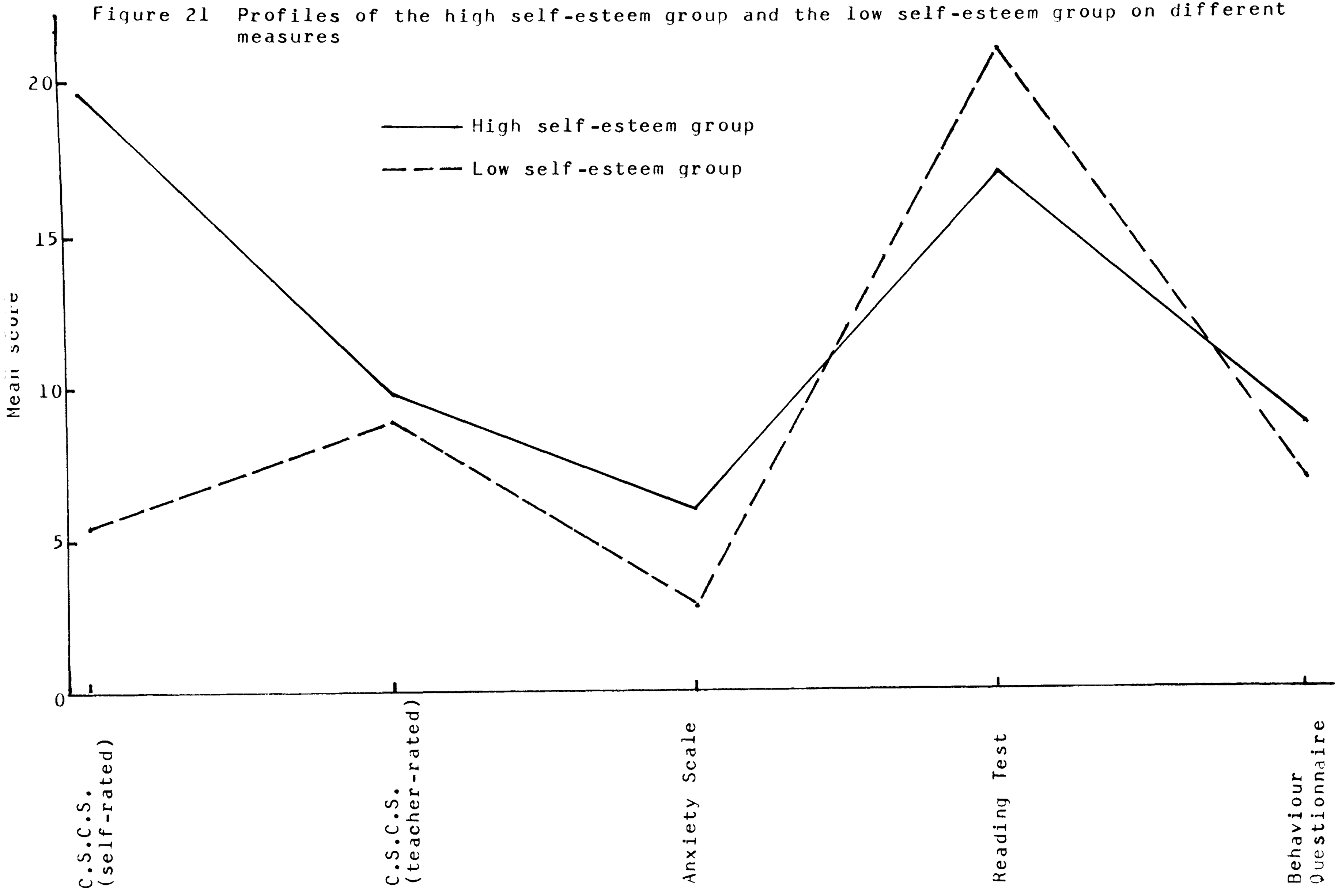
Table 36 Differences in mean scores ($\bar{x}$) between the high self-esteem group (H.S.E.G.) and the low self-esteem group (L.S.E.G.) on different measures (C.S.C.S. = Children's Self-Concept Scale; S.D. = standard deviation)

Measures	Group	N	$\bar{x}$	S.D.	t-value	Significant level
C.S.C.S. (self-rated)	H.S.E.G.	80	19.44	3.76	28.41	p<0.001
	L.S.E.G.	79	5.49	2.24		
C.S.C.S. (teacher-rated)	H.S.E.G.	80	9.88	7.67	0.89	N.S.
	L.S.E.G.	79	8.86	6.75		
Anxiety Scale	H.S.E.G.	80	6.03	2.22	9.25	p<0.001
	L.S.E.G.	79	2.91	2.02		
Reading Test	H.S.E.G.	80	17.01	7.48	3.49	p<0.001
	L.S.E.G.	79	21.20	7.68		
Behaviour Scale	H.S.E.G.	80	8.79	6.93	1.59	N.S.
	L.S.E.G.	79	7.05	6.88		

As indicated in Table 36 and Figure 21, significant differences were found between the high self-esteem group and the

1 Descriptive data of children in the high self-esteem and the low self-esteem groups and their scores on different tests are presented in Appendices 6a and 6b.

Figure 21 Profiles of the high self-esteem group and the low self-esteem group on different measures



low self-esteem group on their responses to ~~the self-esteem inventory~~ the anxiety scale and the reading test. On these three measures, the high self-esteem group scored significantly higher on the self-esteem inventory and the anxiety scale, but lower on the reading test than did the low self-esteem group. There was, however, no difference in teachers' assessment of children in two self-esteem groups on the self-esteem inventory and the behaviour questionnaire.

Although the t-values computed from the summation scores of the five instruments indicated that the high self-esteem group scored differently and significantly from the low self-esteem group in responding to the Children's Self-Concept Scale, the Children's Manifest Anxiety Scale, and the Young's Group Reading Test, item analyses of the first two scales were conducted to examine further these differences.[1] The t-values in Table 37 indicated that thirty-five items of the self-esteem inventory were answered differently and significantly by the two self-esteem groups, thirty of these at the .001 level. Children in both self-esteem groups, however, showed no differences in responding to item 2 (I am unpopular) and item 26 (I am good looking) (Table 37 and Figure 22).

In answering the items of the Children's Manifest Anxiety Scale, the high and low self-esteem groups showed significantly different responses on nine items, except item 10 (I often worry about what could happen to my parents) (Table 38 and Figure 23). Compared with the low self-esteem group, the high self-esteem group scored higher on the nine significant items of the anxiety scale.

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1 Since the reading score of each subject was computed from the total mark a child got from the test, it was impossible to analyse the differences between the high self-esteem group and the low self-esteem group in responding to each item of the reading test.

Table 37 Differences in mean scores ($\bar{x}$) between the high self-esteem group (H.S.E.G.) and the low self-esteem group (L.S.E.G.) in responding to each item of the revised Children's Self-Concept Scale (σ^2 = variance)

Item No.	H.S.E.G.(N=80) $\bar{x}$	H.S.E.G.(N=80) σ^2	L.S.E.G.(N=79) $\bar{x}$	L.S.E.G.(N=79) σ^2	t-value	Significant level
1	0.16	0.12	0.03	0.03	3.06	p<0.01
2	0.48	0.25	0.52	0.25	0.56	N.S.
3	0.20	0.16	0.08	0.07	2.31	p<0.05
4	0.66	0.22	0.27	0.20	5.47	p<0.001
5	0.53	0.25	0.19	0.15	4.71	p<0.001
6	0.50	0.25	0.03	0.02	8.10	p<0.001
7	0.30	0.21	0.06	0.06	4.01	p<0.001
8	0.65	0.23	0.27	0.20	5.21	p<0.001
9	0.60	0.24	0.13	0.11	7.14	p<0.001
10	0.16	0.14	0.06	0.06	2.00	p<0.05
11	0.53	0.25	0.06	0.06	7.42	p<0.001
12	0.60	0.24	0.11	0.10	7.43	p<0.001
13	0.71	0.20	0.16	0.14	8.35	p<0.001
14	0.66	0.22	0.08	0.07	9.67	p<0.001
15	0.44	0.25	0.10	0.09	5.17	p<0.001
16	0.69	0.21	0.19	0.15	7.31	p<0.001
17	0.74	0.19	0.18	0.15	8.58	p<0.001
18	0.65	0.23	0.23	0.18	5.93	p<0.001
19	0.35	0.23	0.10	0.09	3.93	p<0.001
20	0.70	0.21	0.13	0.11	9.04	p<0.001
21	0.45	0.25	0.11	0.10	5.08	p<0.001
22	0.38	0.23	0.19	0.15	2.65	p<0.01
23	0.71	0.20	0.16	0.14	8.35	p<0.001
24	0.34	0.22	0.03	0.02	5.60	p<0.001
25	0.21	0.17	0.01	0.01	4.21	p<0.001
26	0.19	0.15	0.18	0.15	0.17	N.S.
27	0.70	0.21	0.23	0.18	6.78	p<0.001
28	0.81	0.15	0.22	0.17	9.40	p<0.001
29	0.41	0.24	0.08	0.07	5.38	p<0.001
30	0.25	0.19	0.11	0.10	2.26	p<0.05
31	0.75	0.19	0.16	0.14	9.16	p<0.001
32	0.51	0.25	0.06	0.06	7.22	p<0.001
33	0.60	0.24	0.10	0.09	7.74	p<0.001
34	0.86	0.12	0.44	0.25	6.18	p<0.001
35	0.69	0.21	0.14	0.12	8.46	p<0.001
36	0.63	0.23	0.11	0.10	7.88	p<0.001
37	0.65	0.23	0.19	0.15	6.65	p<0.001

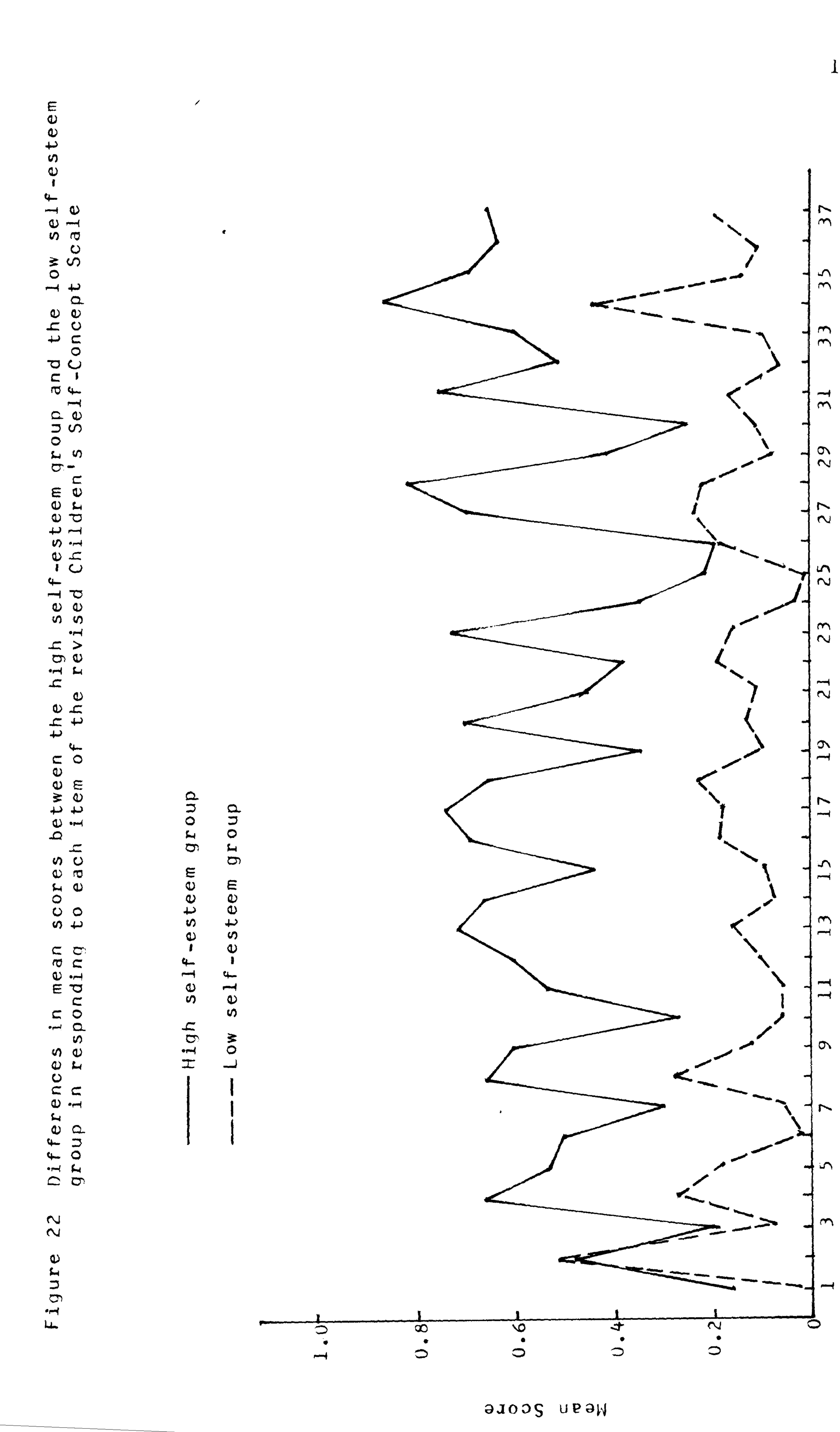

Figure 22 Differences in mean scores between the high self-esteem group and the low self-esteem group in responding to each item of the revised Children's Self-Concept Scale

Table 38 Differences in mean scores ($\bar{x}$) between the high self-esteem group (H.S.E.G.) and the low self-esteem group (L.S.E.G.) in responding to each item of the Children's Manifest Anxiety Scale (σ^2 = variance)

Item No.	H.S.E.G.(N=80) $\bar{x}$	H.S.E.G.(N=80) σ^2	L.S.E.G.(N=79) $\bar{x}$	L.S.E.G.(N=79) σ^2	t-value	Significant level
1	0.58	0.24	0.15	0.13	6.18	p<0.001
2	0.68	0.22	0.35	0.23	4.27	p<0.001
3	0.43	0.24	0.13	0.11	4.47	p<0.001
4	0.61	0.24	0.35	0.23	3.37	p<0.001
5	0.61	0.24	0.29	0.21	4.30	p<0.001
6	0.48	0.25	0.14	0.12	4.93	p<0.001
7	0.66	0.22	0.24	0.18	5.90	p<0.001
8	0.55	0.25	0.14	0.12	6.05	p<0.001
9	0.65	0.23	0.37	0.23	3.72	p<0.001
10	0.79	0.17	0.75	0.19	0.61	N.S.

Additionally, item analyses were conducted on the two measures assessed by teachers. Although no significant differences were observed on teachers' assessment of the high self-esteem group and the low self-esteem group on the self-esteem inventory and the behaviour questionnaire, item analyses revealed that, when teachers evaluated their children's self-esteem, they described the low self-esteem subjects as day-dreaming more than the high self-esteem subjects (item 14) (Table 39 and Figure 24). In assessing children's classroom behaviour with the Children's Behaviour Questionnaire, significant differences were found on four items, all of these at the .05 level (Table 40). Teachers described the high self-esteem subjects as more irritable (item 9), having poorer concentration or short attention span (item 16), and having a greater tendency to steal things on one or more occasions (item 20). On the other hand, the t-value revealed that the higher self-esteem subjects were significantly

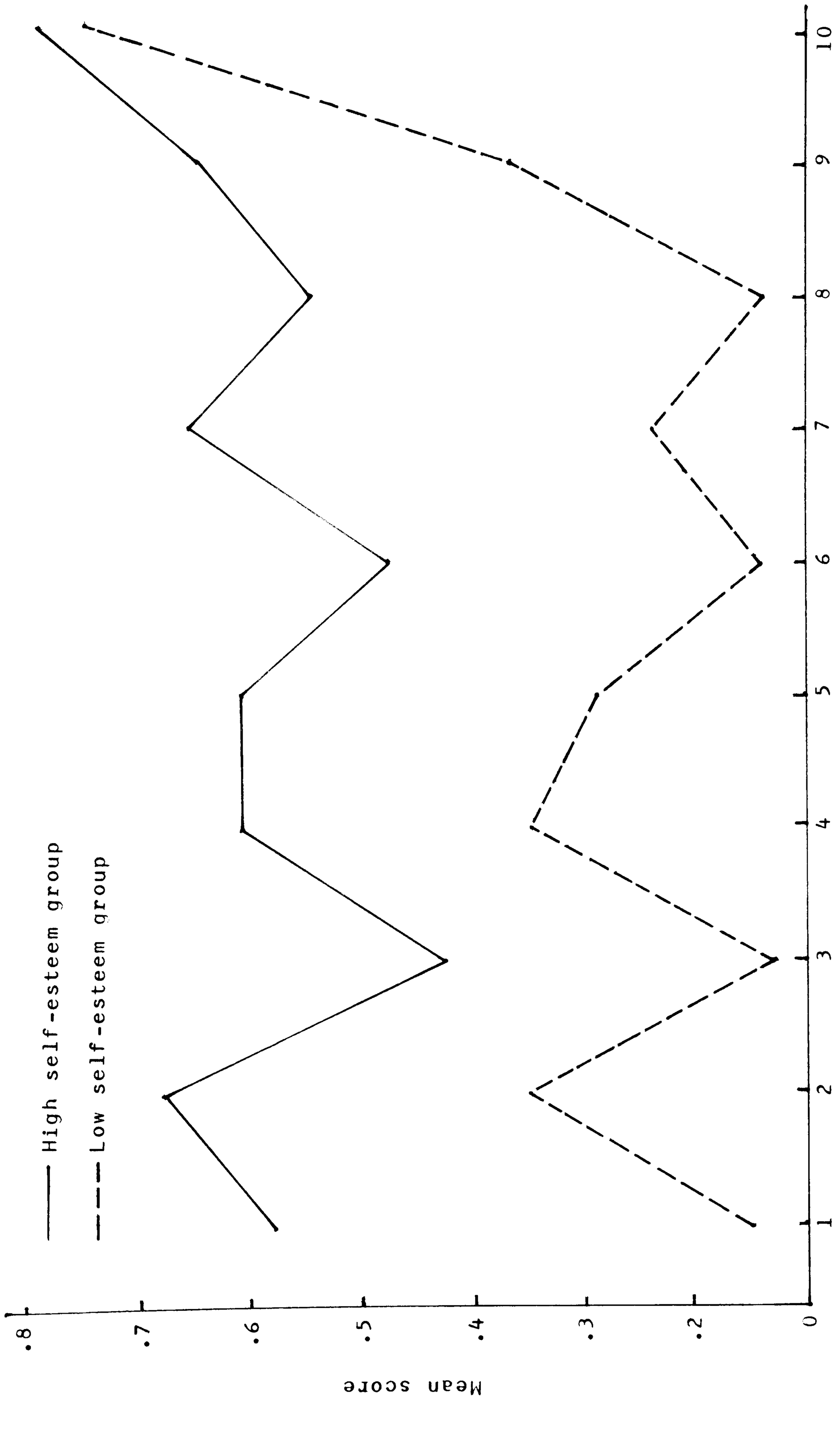

Figure 23 Differences in mean scores between the high self-esteem group and the low self-esteem group in response to each item of the Children's Manifest Anxiety Scale

Table 39 Differences in mean scores ($\bar{x}$) between the high self-esteem group (H.S.E.G.) and the low self-esteem group (L.S.E.G.) assessed by their teachers in the revised Children's Self-Concept Scale (σ^2 = variance)

Item No.	H.S.E.G.(N=80) $\bar{x}$	H.S.E.G.(N=80) σ^2	L.S.E.G.(N=79) $\bar{x}$	L.S.E.G.(N=79) σ^2	t-value	Significant level
1	0.21	0.17	0.13	0.11	1.45	N.S.
2	0.20	0.16	0.11	0.10	1.50	N.S.
3	0.24	0.18	0.16	0.14	1.15	N.S.
4	0.26	0.19	0.20	0.16	0.90	N.S.
5	0.38	0.23	0.27	0.20	1.49	N.S.
6	0.24	0.18	0.18	0.15	0.94	N.S.
7	0.41	0.24	0.42	0.24	0.07	N.S.
8	0.34	0.22	0.46	0.25	1.53	N.S.
9	0.15	0.13	0.14	0.12	0.19	N.S.
10	0.44	0.25	0.37	0.23	0.91	N.S.
11	0.20	0.16	0.16	0.14	0.58	N.S.
12	0.45	0.25	0.47	0.25	0.23	N.S.
13	0.30	0.21	0.37	0.23	0.90	N.S.
14	0.23	0.17	0.38	0.24	2.15	$p<0.05$
15	0.41	0.24	0.33	0.22	1.09	N.S.
16	0.30	0.21	0.28	0.20	0.30	N.S.
17	0.35	0.23	0.30	0.21	0.62	N.S.
18	0.13	0.11	0.11	0.10	0.22	N.S.
19	0.15	0.13	0.15	0.13	0.03	N.S.
20	0.20	0.16	0.19	0.15	0.16	N.S.
21	0.14	0.12	0.22	0.17	1.29	N.S.
22	0.44	0.25	0.43	0.25	0.09	N.S.
23	0.24	0.18	0.14	0.12	1.60	N.S.
24	0.30	0.21	0.20	0.16	1.43	N.S.
25	0.15	0.13	0.19	0.15	0.67	N.S.
26	0.31	0.21	0.23	0.18	1.21	N.S.
27	0.26	0.19	0.22	0.17	0.70	N.S.
28	0.34	0.22	0.25	0.19	1.17	N.S.
29	0.14	0.12	0.14	0.12	0.03	N.S.
30	0.14	0.12	0.16	0.14	0.48	N.S.
31	0.34	0.22	0.23	0.18	1.55	N.S.
32	0.25	0.19	0.16	0.14	1.34	N.S.
33	0.48	0.25	0.41	0.24	0.89	N.S.
34	0.28	0.20	0.20	0.16	1.08	N.S.
35	0.25	0.19	0.29	0.21	0.58	N.S.
36	0.15	0.13	0.09	0.08	1.20	N.S.
37	0.11	0.10	0.13	0.11	0.27	N.S.

Figure 24 Differences in mean scores between the high self-esteem group and the low self-esteem group assessed by their teachers in the revised Children's Self-Concept Scale

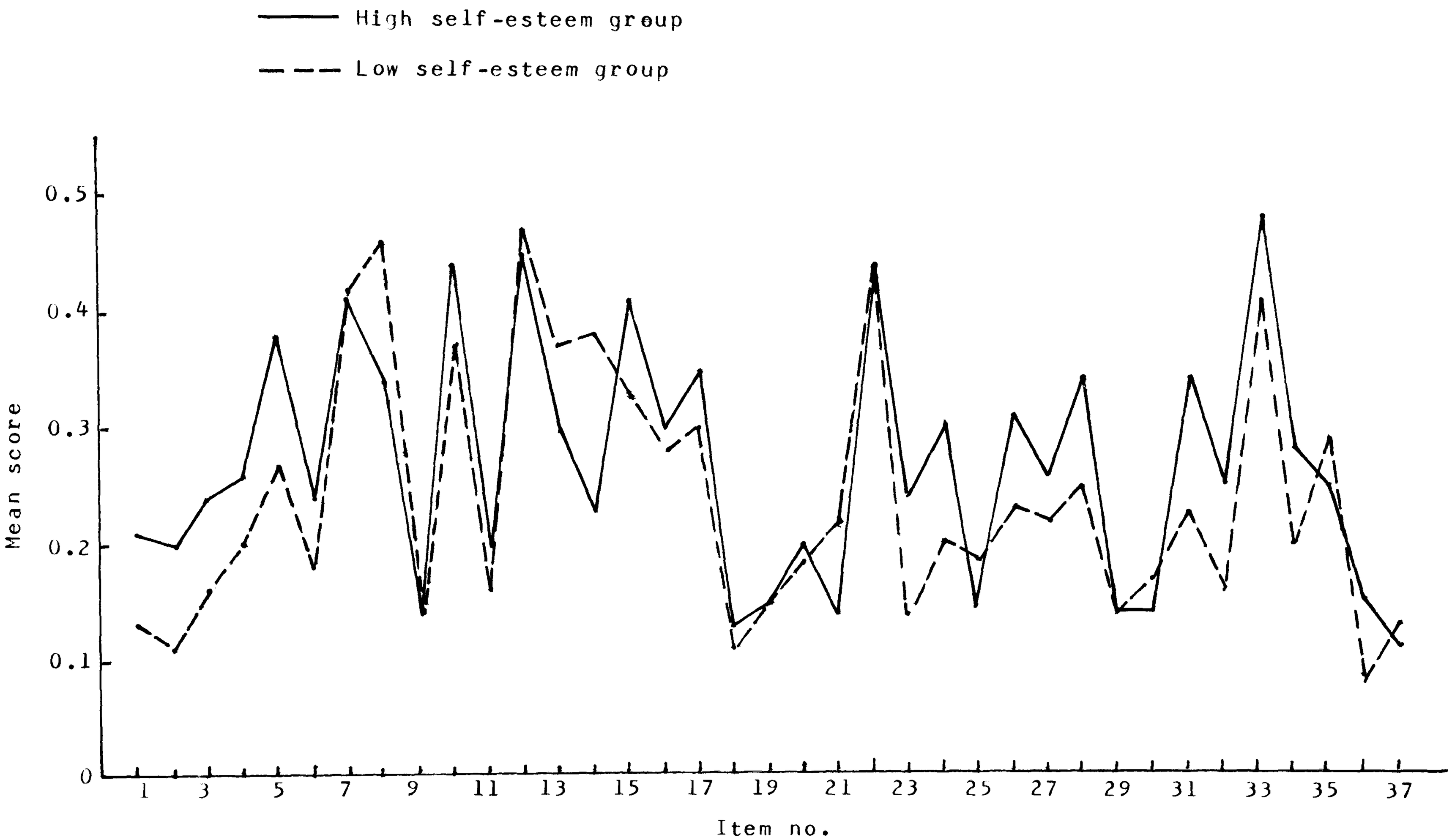

Table 40 Differences in mean scores ($\bar{x}$) between the high self-esteem group (H.S.E.G.) and the low self-esteem group (L.S.E.G.) assessed by their teachers in the Children's Behaviour Questionnaire (σ^2 = variance)

Item No.	H.S.E.G.(N=80) $\bar{x}$	H.S.E.G.(N=80) σ^2	L.S.E.G.(N=79) $\bar{x}$	L.S.E.G.(N=79) σ^2	t-value	Significant level
1	0.54	0.55	0.35	0.46	1.63	N.S.
2	0.09	0.13	0.09	0.13	0.02	N.S.
3	0.56	0.52	0.44	0.50	1.05	N.S.
4	0.23	0.25	0.13	0.14	1.42	N.S.
5	0.51	0.50	0.47	0.48	0.40	N.S.
6	0.46	0.42	0.32	0.32	1.51	N.S.
7	0.53	0.42	0.46	0.37	0.69	N.S.
8	0.43	0.42	0.38	0.41	0.44	N.S.
9	0.55	0.55	0.34	0.35	1.96	$p<0.05$
10	0.44	0.47	0.29	0.33	1.46	N.S.
11	0.24	0.28	0.24	0.28	0.04	N.S.
12	0.09	0.10	0.13	0.14	0.71	N.S.
13	0.18	0.27	0.23	0.28	0.64	N.S.
14	0.13	0.16	0.29	0.33	2.11	$p<0.05$
15	0.49	0.47	0.34	0.38	1.41	N.S.
16	0.80	0.61	0.53	0.48	2.30	$p<0.05$
17	0.48	0.40	0.47	0.48	0.06	N.S.
18	0.29	0.35	0.35	0.38	0.70	N.S.
19	0.40	0.44	0.28	0.30	1.26	N.S.
20	0.23	0.35	0.06	0.08	2.19	$p<0.05$
21	0.06	0.08	0.03	0.05	0.91	N.S.
22	0.16	0.16	0.10	0.12	1.04	N.S.
23	0.09	0.13	0.05	0.07	0.73	N.S.
24	0.09	0.08	0.15	0.23	1.03	N.S.
25	0.40	0.54	0.27	0.37	1.25	N.S.
26	0.36	0.46	0.27	0.30	0.99	N.S.

less absent from school for trival reasons (item 14) than the low self-esteem group (Figure 25).

The last research question addressed in the study was "What are the differences in scores between the high teacher-evaluated children and the low teacher-evaluated children on the self-esteem inventory, teachers' evaluation of children's self-esteem, anxiety scale, reading test, and behaviour questionnaire?" The methods of data analysis were similar to those used in answering the sixth research question. Initially, teacher-evaluated self-esteem scores of children were arranged from the highest to the lowest and the mean score was calculated.[1] Using the upper- and lower-thirds method, children having teacher-evaluated self-esteem score of 13 or above were assigned to the high teacher-evaluated group and children having teacher-evaluated self-esteem score of 5 or lower were assigned to the low teacher-evaluated group. As a result, the high teacher-evaluated group consisted of seventy-seven children (teacher-evaluated self-esteem scores ranged from 13 to 29) and the low teacher-evaluated group comprised eighty children (teacher-evaluated self-esteem scores ranged from 0 to 5). Table 41 shows the means, standard deviations, and t-values of the two teacher-evaluated groups on different instruments.

The t-values in Table 41 indicated that the two teacher-evaluated groups were assessed differently and significantly by their teachers on the Children's Self-Concept Scale and the Behaviour Questionnaire. In addition, the data revealed that the high teacher-evaluated group scored significantly lower on the reading test than did the low teacher-evaluated group. No significant differences were identified between the two

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1 Descriptive data of children in the high teacher-evaluated group and the low teacher-evaluated group and their scores on different tests are presented in Appendices 7a and 7b.

Figure 25 Differences in mean scores between the high self-esteem group and the low self-esteem group assessed by their teachers in the Children's Behaviour Questionnaire

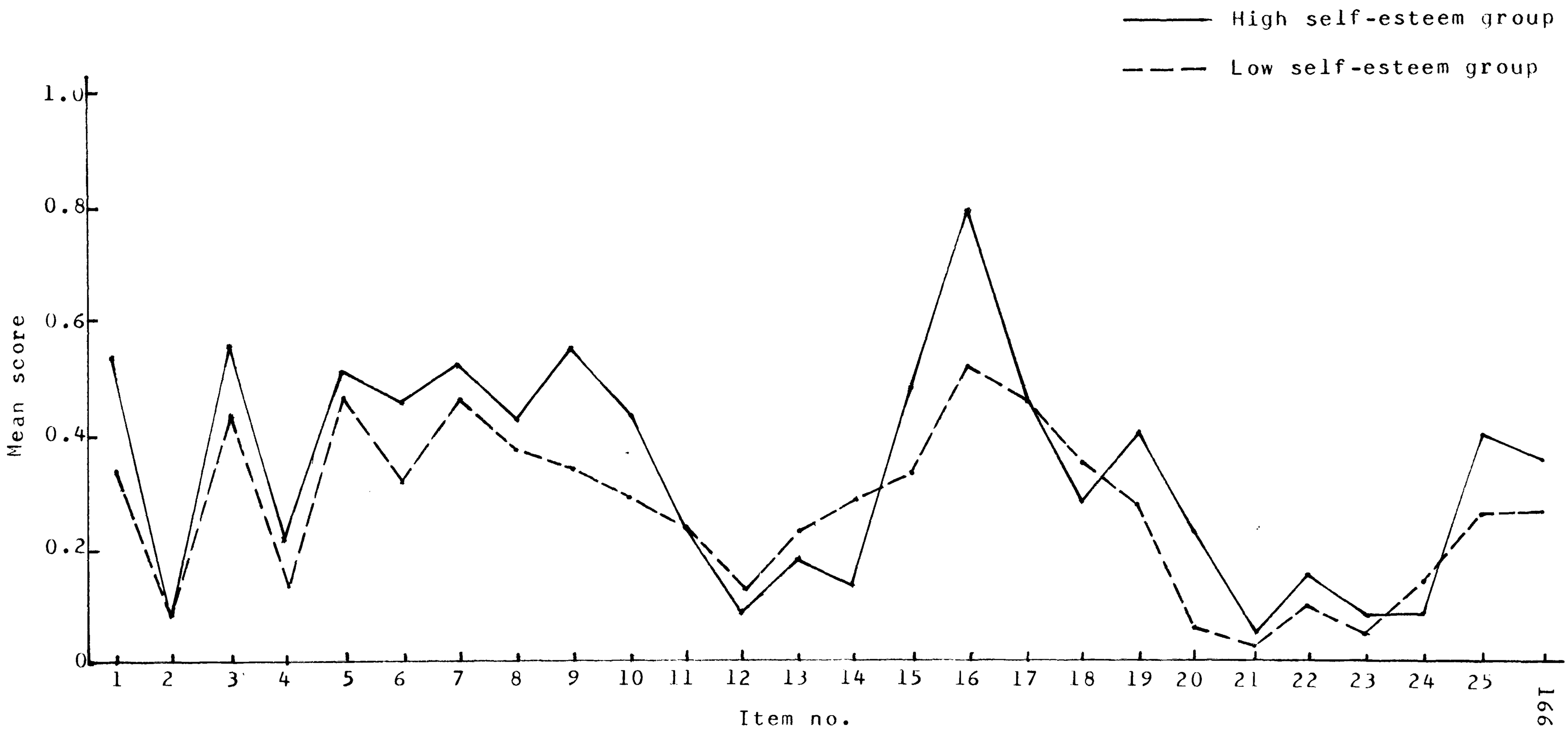


Table 41 Differences in mean scores ($\bar{x}$) between the high teacher-evaluated group (H.T.E.G.) and the low teacher-evaluated group (L.T.E.G.) on different measures (C.S.C.S. = Children's Self-Concept Scale; S.D. = standard deviation)

Measures	Group	N	$\bar{x}$	S.D.	t-value	Significant level
C.S.C.S. (teacher-evaluated)	H.T.E.G.	77	18.40	4.52	29.33	p<0.001
	L.T.E.G.	80	2.33	1.68		
C.S.C.S. (self-rated)	H.T.E.G.	77	12.99	6.08	0.67	N.S.
	L.T.E.G.	80	12.28	7.24		
Anxiety Scale	H.T.E.G.	77	4.31	2.12	1.49	N.S.
	L.T.E.G.	80	4.88	2.61		
Reading Test	H.T.E.G.	77	16.82	7.29	3.47	p<0.001
	L.T.E.G.	80	21.20	8.49		
Behaviour Scale	H.T.E.G.	77	13.86	7.18	10.76	p<0.001
	L.T.E.G.	80	3.76	4.11		

teacher-evaluated groups in responding to both the self-esteem inventory and the anxiety scale. As illustrated in Figure 26, the high teacher-evaluated group was described by their teachers in the Children's Behaviour Questionnaire as having more behavioural disorders. In the reading test, the high teacher-evaluated group scored significantly lower than the low teacher-evaluated group.

Since the results showed that the two teacher-evaluated groups were assessed differently by their teachers on the self-esteem inventory and the behaviour scale, item analyses of these instruments were carried out with the results presented in Table 42 and Table 43. From Table 42 and Figure 27, the data further illustrated that the two teacher-evaluated groups were

Figure 26 Profiles of the high teacher-evaluated group and the low teacher-evaluated group on different measures

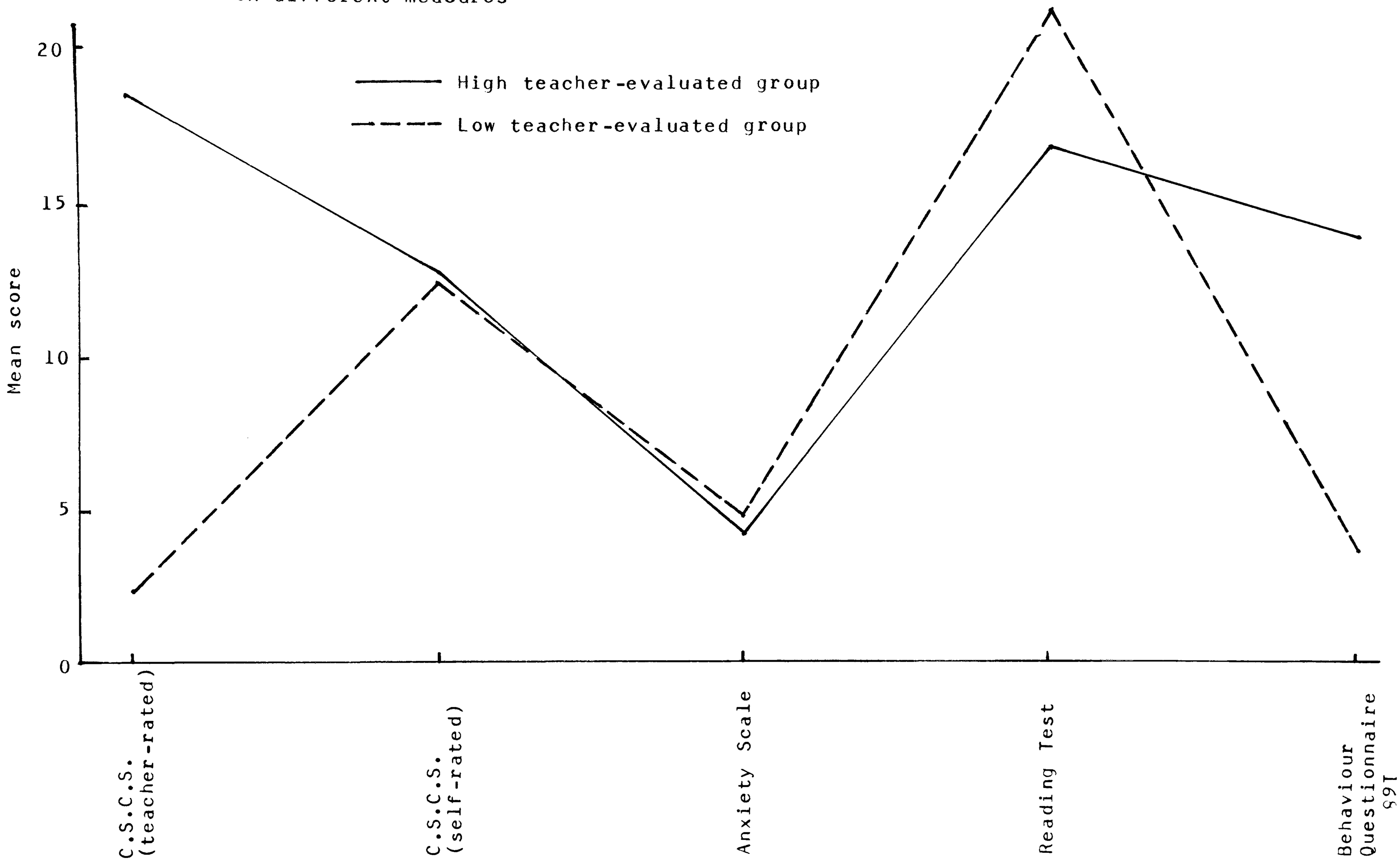
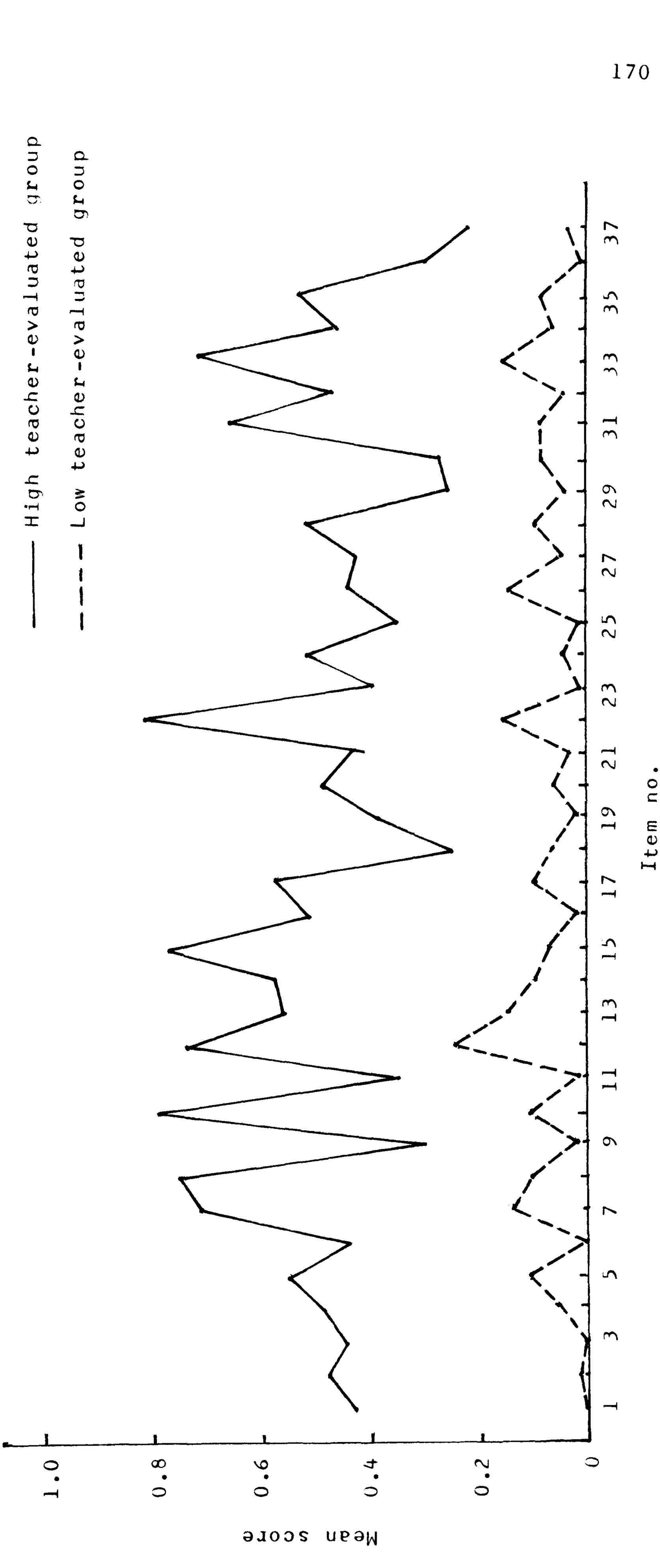


Table 42 Differences in mean scores ($\bar{x}$) between the high teacher-evaluated group (H.T.E.G.) and the low teacher-evaluated group (L.T.E.G.) in the revised Children's Self-Concept Scale assessed by their teachers (σ^2 = variance)

Item No.	H.T.E.G.(N=77) $\bar{x}$	H.T.E.G.(N=77) σ^2	L.T.E.G.(N=80) $\bar{x}$	L.T.E.G.(N=80) σ^2	t-value	Significant level
1	0.43	0.25	0.00	0.00	7.60	$p<0.001$
2	0.48	0.25	0.01	0.01	8.03	$p<0.001$
3	0.45	0.25	0.00	0.00	8.01	$p<0.001$
4	0.49	0.25	0.05	0.05	7.16	$p<0.001$
5	0.55	0.25	0.11	0.10	6.48	$p<0.001$
6	0.44	0.25	0.00	0.00	7.80	$p<0.001$
7	0.71	0.20	0.13	0.11	9.30	$p<0.001$
8	0.75	0.19	0.10	0.09	10.98	$p<0.001$
9	0.30	0.21	0.01	0.01	5.34	$p<0.001$
10	0.79	0.16	0.10	0.09	12.12	$p<0.001$
11	0.34	0.22	0.01	0.01	5.88	$p<0.001$
12	0.74	0.19	0.24	0.18	7.29	$p<0.001$
13	0.56	0.25	0.14	0.12	6.15	$p<0.001$
14	0.57	0.25	0.09	0.08	7.49	$p<0.001$
15	0.78	0.17	0.06	0.06	13.16	$p<0.001$
16	0.51	0.25	0.01	0.01	8.47	$p<0.001$
17	0.57	0.25	0.09	0.08	7.49	$p<0.001$
18	0.25	0.19	0.06	0.06	3.29	$p<0.01$
19	0.39	0.24	0.01	0.01	6.62	$p<0.001$
20	0.49	0.25	0.05	0.05	7.16	$p<0.001$
21	0.43	0.24	0.03	0.02	6.84	$p<0.001$
22	0.81	0.16	0.15	0.13	10.87	$p<0.001$
23	0.40	0.24	0.01	0.01	6.81	$p<0.001$
24	0.52	0.25	0.04	0.04	7.93	$p<0.001$
25	0.35	0.23	0.01	0.01	6.06	$p<0.001$
26	0.44	0.25	0.14	0.12	4.44	$p<0.001$
27	0.43	0.25	0.04	0.04	6.49	$p<0.001$
28	0.52	0.25	0.09	0.08	6.64	$p<0.001$
29	0.26	0.19	0.04	0.04	4.09	$p<0.001$
30	0.27	0.20	0.08	0.07	3.37	$p<0.01$
31	0.66	0.22	0.08	0.07	9.56	$p<0.001$
32	0.48	0.25	0.04	0.04	7.29	$p<0.001$
33	0.71	0.20	0.15	0.13	8.66	$p<0.001$
34	0.47	0.25	0.06	0.06	6.43	$p<0.001$
35	0.53	0.25	0.08	0.07	7.15	$p<0.001$
36	0.30	0.21	0.01	0.01	5.34	$p<0.001$
37	0.22	0.17	0.03	0.02	3.89	$p<0.001$

Figure 27 Differences in mean scores between the high teacher-evaluated group and the low teacher-evaluated group in the revised Children's Self-Concept Scale assessed by their teachers



assessed differently and significantly by their teachers on the self-esteem inventory.

Although the t-value computed from the summation score of the whole behaviour scale was significant at the .001 level, item analysis of the scale indicated that the two teacher-evaluated groups were assessed in a similar way by their teachers in four items. Despite higher mean scores obtained by the high teacher-evaluated group in these four non-significant items, the high teacher-evaluated group did not differ much from the low teacher-evaluated group on item 2 (Truants from school), item 20 (Has stolen things on one or more occasions), item 21 (Has wet or soiled self at school this year), and item 23 (Has had tears on arrival at school or has refused to come into the building this year) (Table 43 and Figure 28).

Item analysis was also carried out on both the self-esteem inventory and the anxiety scale completed by children. Table 44 and Figure 29 show that, in answering the items of the Children's Self-Concept Scale, the high teacher-evaluated group responded in a similar way as the low teacher-evaluated group. No significant differences were identified with all thirty-seven items. In responding to the items of the Children's Manifest Anxiety Scale, the t-values in Table 45 indicated that the high teacher-evaluated group was less of the opinion than the low teacher-evaluated group that others seemed to do things easier than they could (item 2). For all the other items in the scale, no significant differences were detected between the two groups (Table 45 and Figure 30).

Table 43 Differences in mean scores ($\bar{x}$) between the high teacher-evaluated group (H.T.E.G.) and the low teacher-evaluated group (L.T.E.G.) in the Children's Behaviour Questionnaire assessed by their teachers (σ^2 = variance)

Item No.	H.T.E.G.(N=77) $\bar{x}$	H.T.E.G.(N=77) σ^2	L.T.E.G.(N=80) $\bar{x}$	L.T.E.G.(N=80) σ^2	t-value	Significant level
1	0.75	0.60	0.20	0.24	5.34	p<0.001
2	0.12	0.18	0.03	0.02	1.78	N.S.
3	0.83	0.63	0.21	0.19	6.00	p<0.001
4	0.31	0.34	0.04	0.04	3.91	p<0.001
5	0.83	0.63	0.19	0.18	6.30	p<0.001
6	0.84	0.50	0.13	0.11	8.14	p<0.001
7	0.78	0.51	0.31	0.29	4.61	p<0.001
8	0.71	0.59	0.26	0.24	4.36	p<0.001
9	0.74	0.61	0.19	0.20	5.41	p<0.001
10	0.67	0.61	0.15	0.18	5.22	p<0.001
11	0.52	0.51	0.14	0.19	4.02	p<0.001
12	0.19	0.16	0.03	0.02	3.51	p<0.001
13	0.38	0.42	0.09	0.10	3.53	p<0.001
14	0.29	0.36	0.11	0.15	2.14	p<0.05
15	0.74	0.58	0.15	0.13	6.17	p<0.001
16	1.17	0.56	0.29	0.25	8.64	p<0.001
17	0.84	0.63	0.26	0.22	5.58	p<0.001
18	0.58	0.63	0.21	0.21	3.56	p<0.001
19	0.66	0.61	0.15	0.18	5.08	p<0.001
20	0.21	0.32	0.11	0.15	1.23	N.S.
21	0.06	0.09	0.03	0.02	1.05	N.S.
22	0.23	0.26	0.09	0.08	2.22	p<0.05
23	0.16	0.24	0.04	0.06	1.91	N.S.
24	0.27	0.35	0.05	0.05	3.09	p<0.01
25	0.43	0.45	0.21	0.34	2.14	p<0.05
26	0.52	0.59	0.11	0.12	4.25	p<0.001

Figure 28 Differences in mean scores between the high teacher-evaluated group and the low teacher-evaluated group in the Children's Behaviour Questionnaire assessed by their teachers

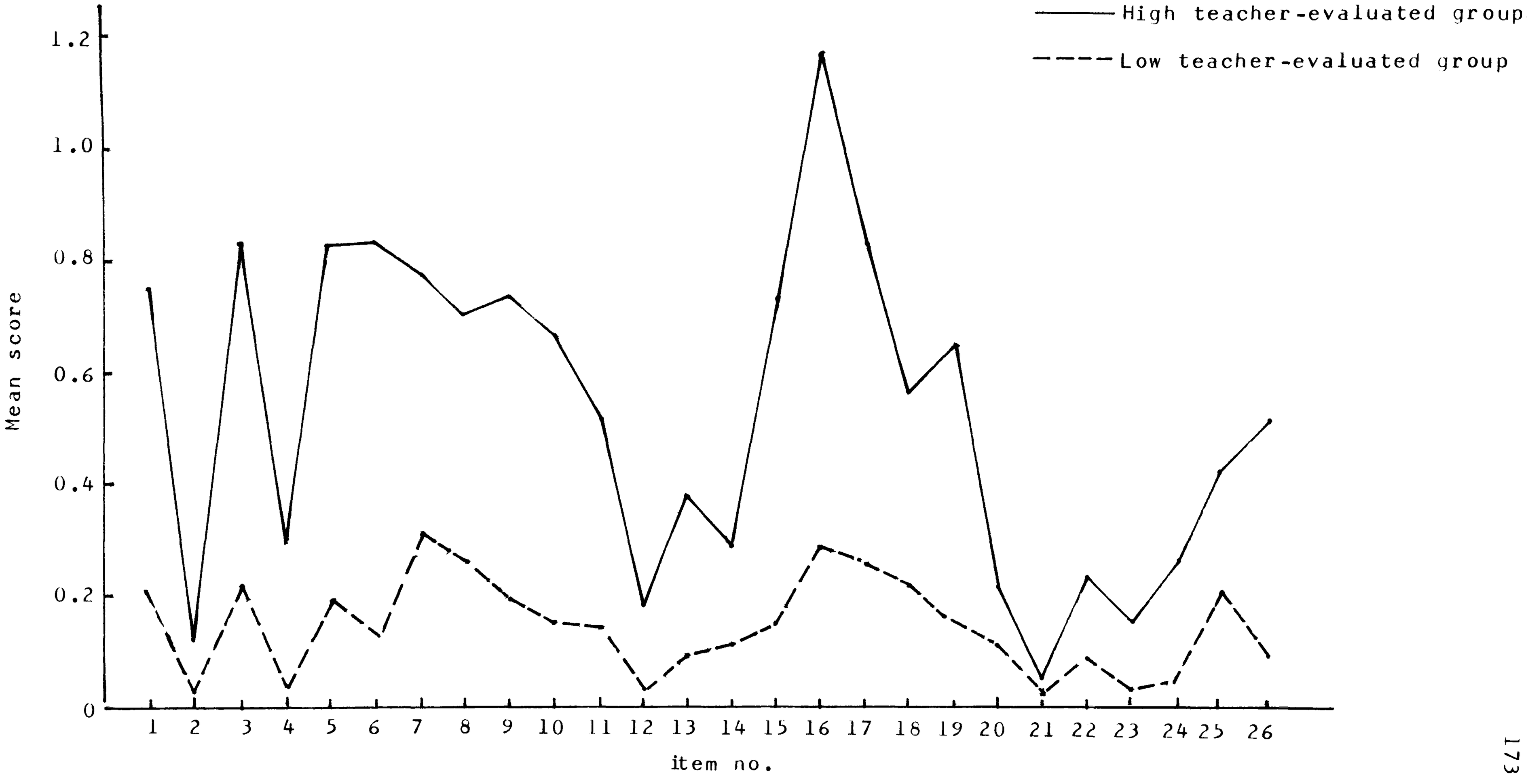


Table 44 Differences in mean scores ($\bar{x}$) between the high teacher-evaluated group (H.T.E.G.) and the low teacher-evaluated group (L.T.E.G.) in responding to each item of the revised Children's Self-Concept Scale (σ^2 = variance)

Item No.	H.T.E.G.(N=77) $\bar{x}$	H.T.E.G.(N=77) σ^2	L.T.E.G.(N=80) $\bar{x}$	L.T.E.G.(N=80) σ^2	t-value	Significant level
1	0.12	0.10	0.04	0.04	1.88	N.S.
2	0.43	0.25	0.55	0.25	1.53	N.S.
3	0.19	0.16	0.09	0.08	1.95	N.S.
4	0.43	0.24	0.50	0.25	0.90	N.S.
5	0.49	0.25	0.40	0.24	1.18	N.S.
6	0.23	0.18	0.24	0.18	0.05	N.S.
7	0.13	0.11	0.16	0.14	0.58	N.S.
8	0.48	0.25	0.46	0.25	0.23	N.S.
9	0.43	0.24	0.33	0.22	1.35	N.S.
10	0.18	0.15	0.09	0.08	1.74	N.S.
11	0.31	0.21	0.28	0.20	0.51	N.S.
12	0.36	0.23	0.40	0.24	0.47	N.S.
13	0.38	0.23	0.50	0.25	1.57	N.S.
14	0.44	0.25	0.33	0.22	1.51	N.S.
15	0.34	0.22	0.21	0.17	1.77	N.S.
16	0.39	0.24	0.48	0.25	1.08	N.S.
17	0.45	0.25	0.49	0.25	0.41	N.S.
18	0.43	0.24	0.44	0.25	0.11	N.S.
19	0.21	0.16	0.18	0.14	0.52	N.S.
20	0.47	0.25	0.45	0.25	0.22	N.S.
21	0.31	0.21	0.20	0.16	1.61	N.S.
22	0.36	0.23	0.25	0.19	1.55	N.S.
23	0.48	0.25	0.38	0.23	1.34	N.S.
24	0.18	0.15	0.16	0.14	0.32	N.S.
25	0.17	0.14	0.08	0.07	1.81	N.S.
26	0.21	0.16	0.18	0.14	0.52	N.S.
27	0.43	0.24	0.43	0.24	0.05	N.S.
28	0.58	0.24	0.51	0.25	0.91	N.S.
29	0.21	0.16	0.21	0.17	0.07	N.S.
30	0.23	0.18	0.19	0.15	0.71	N.S.
31	0.44	0.25	0.49	0.25	0.58	N.S.
32	0.30	0.21	0.29	0.20	0.15	N.S.
33	0.35	0.23	0.36	0.23	0.16	N.S.
34	0.66	0.22	0.68	0.22	0.17	N.S.
35	0.43	0.24	0.48	0.25	0.58	N.S.
36	0.36	0.23	0.41	0.24	0.63	N.S.
37	0.38	0.23	0.41	0.24	0.46	N.S.

Figure 29 Differences in mean scores between the high teacher-evaluated group and the low teacher-evaluated group in responding to each item of the revised Children's Self-Concept Scale

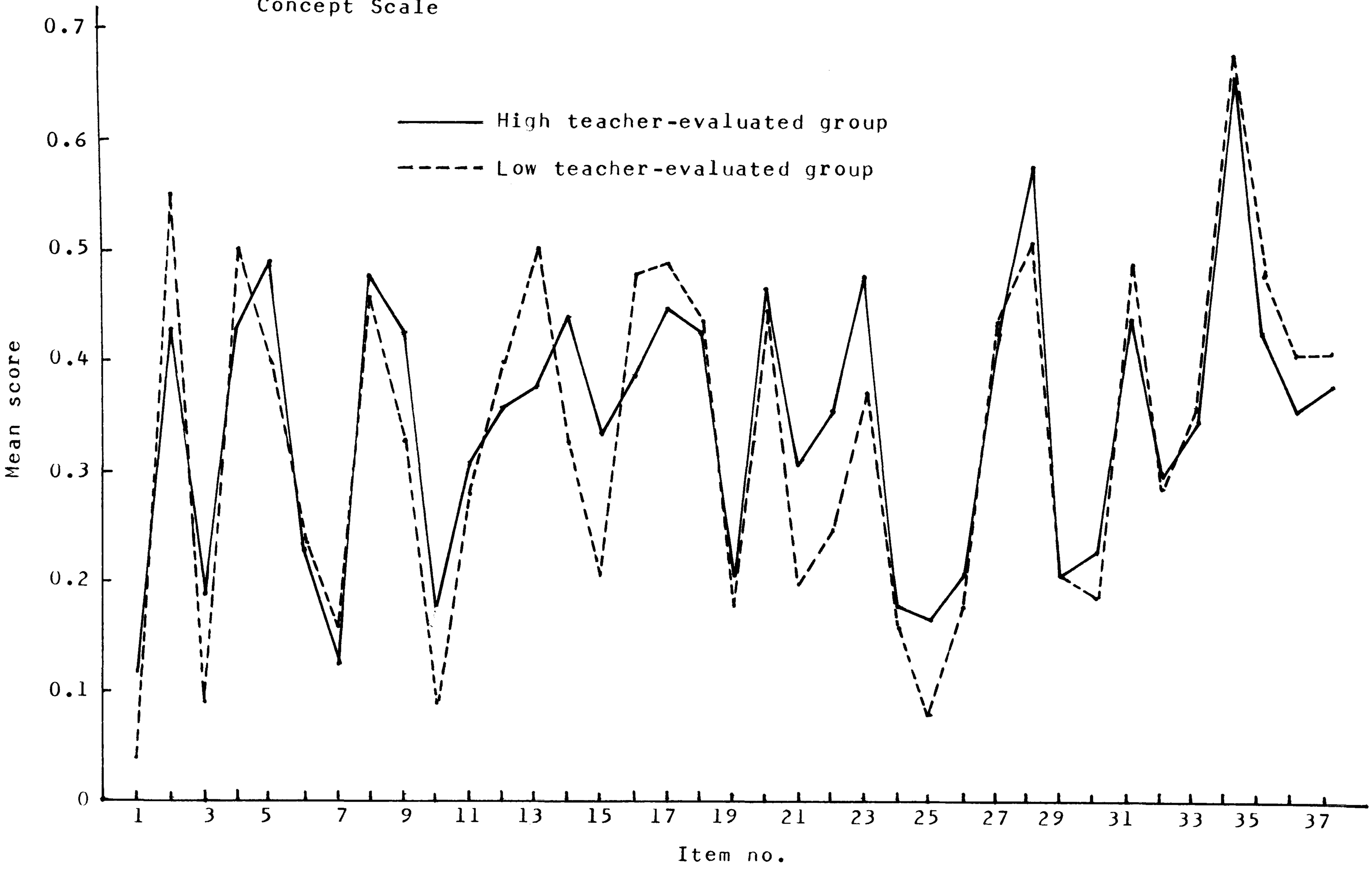


Table 45 Differences in mean scores ($\bar{x}$) between the high teacher-evaluated group (H.T.E.G.) and the low teacher-teacher-evaluated group (L.T.E.G.) in responding to each item of the Children's Manifest Anxiety Scale (σ^2 = variance)

Item No.	H.T.E.G.(N=77) $\bar{x}$	H.T.E.G.(N=77) σ^2	L.T.E.G.(N=80) $\bar{x}$	L.T.E.G.(N=80) σ^2	t-value	Significant level
1	0.45	0.25	0.36	0.23	1.18	N.S.
2	0.39	0.24	0.55	0.25	2.04	$p<0.05$
3	0.30	0.21	0.35	0.23	0.69	N.S.
4	0.52	0.25	0.54	0.25	0.23	N.S.
5	0.44	0.25	0.44	0.25	0.05	N.S.
6	0.26	0.19	0.29	0.20	0.39	N.S.
7	0.45	0.25	0.60	0.24	1.85	N.S.
8	0.34	0.22	0.36	0.23	0.33	N.S.
9	0.44	0.25	0.55	0.25	1.37	N.S.
10	0.71	0.20	0.84	0.14	1.87	N.S.

C. Related Findings

In testing the fifth research hypothesis, the results showed that children's self-esteem scores had dropped significantly by the end of the study. Further analysis was carried out to examine the relationships between the frequencies of teachers' interactions with children and the self-esteem scores of the children at the final stage of the study and to discover whether or not the decrease of children's self-esteem scores was due to the frequencies of teacher-pupil interactions. Initially, Pearson product-moment correlation coefficients were calculated to examine the relationships between the frequencies of teachers' contacts and the self-esteem scores of the children at the end of the study.

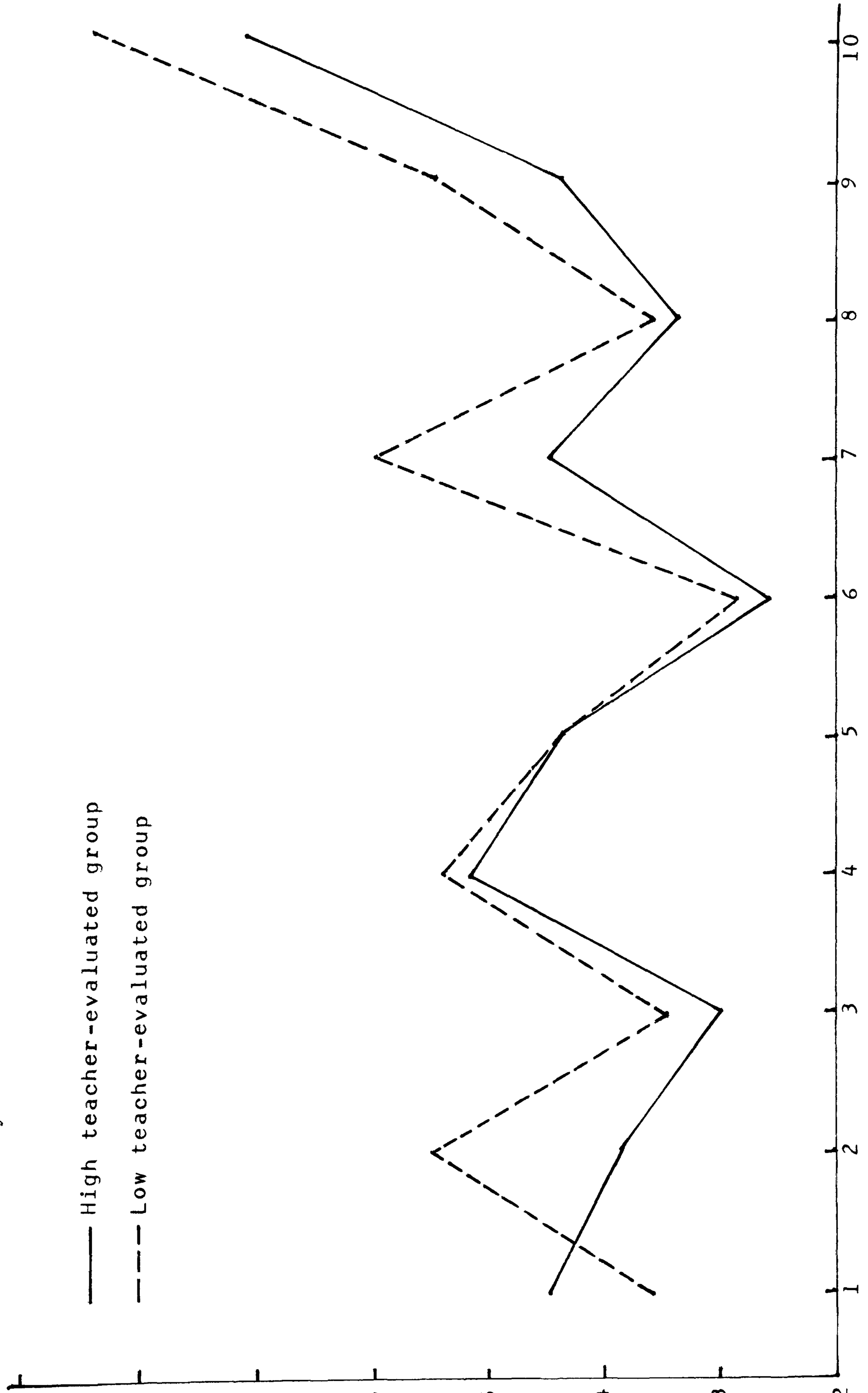


Figure 30 Differences in mean scores between the high teacher-evaluated group and the low teacher-evaluated group in responding to each item of the Children's Manifest Anxiety Scale

As shown in Table 46, only one of the behavioural categories was significantly related to children's self-esteem scores. The data illustrated that there was a positive relationship between the frequencies of teachers' noninstructional contacts and the self-esteem scores of children ($r = 0.35$, $p<0.05$), indicating that children who had high self-esteem score at the end of the study received more noninstructional contacts from their teachers.

Table 46 Correlations between frequencies of teachers' interactions with students and the self-esteem scores of the children in the final stage of the study (N = 29)

Behavioural Category	Product-moment coefficient	Significant level
Instructional contact	0.100	N.S.
Noninstructional contact	0.350	$p<0.05$
Disciplinary contact	0.138	N.S.
Total initiated contact	0.195	N.S.
Positive response	-0.024	N.S.
Negative response	-0.343	N.S.
Total response	-0.090	N.S.

To confirm the above results showing no relationship between frequencies of teachers' interaction and the self-rating self-esteem scores of children at the end of the study, children were regrouped to find out whether or not teachers interacted differently with those children who showed positive change in self-esteem and those who showed negative change in self-esteem. Based on the difference between the self-rating self-esteem score at the beginning of the study and that at the end of the study, seven children showed positive change (mean gain self-esteem score was 3.14), nineteen children showed negative change (mean loss self-esteem score was 4.84), and three children had

no change (Table 47). Since the results in testing the fifth hypothesis showed that children's self-esteem scores dropped significantly from the second **test** session (January, 1982) to the third test session (April, 1982), mean frequencies of teachers' interactions with each child between these two test sessions were calculated. Then, the Mann-Whitney U test was utilised to compare the mean frequencies of teachers' interactions with those children who showed positive change in self-esteem with the mean frequencies of teachers' interactions with those children who showed negative change in self-esteem.[1] Both U-values and z-values in Table 48a and Table 48b indicated no significant differences in teachers' interactions with children who showed positive or negative change in self-esteem.

Although no significant differences were shown in teachers' interactions with children between the two groups, yet the mean frequencies of teachers' initiated contacts illustrated that teachers made more contacts with children who finally showed positive change in self-esteem than with children who finally showed negative change in self-esteem. Especially, teachers initiated more instructional and noninstructional contacts with the former group. On the contrary, the mean frequencies of teachers' initiated contacts showed that teachers made more disciplinary contacts with those children who showed negative change in self-esteem (Figure 31). In responding to children's initiated contacts, the data revealed that teachers responded more to the contacts made by those children who showed positive change in self-esteem, particularly they gave more positive

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1 As only three children showed no change in their self-esteem scores, it was decided to exclude them from the analysis.

Table 47 Grouping of children into (1) those who showed positive change in self-esteem, (2) those who showed negative change in self-esteem, and (3) those who showed no change in self-esteem

Subject No.	1st test Self-esteem score	3rd test Self-esteem score	Difference
3	18	20	+2
8	16	17	+1
15	4	6	+2
22	4	7	+3
23	4	7	+3
26	5	7	+2
27	8	17	+9
1	21	16	-5
2	23	13	-10
4	19	14	-5
5	28	21	-7
6	26	23	-3
9	19	13	-6
10	18	16	-2
11	35	20	-15
12	22	17	-5
13	20	14	-6
14	18	16	-2
16	6	1	-5
17	5	3	-2
18	2	1	-1
19	12	8	-4
21	4	1	-3
24	10	3	-7
28	8	5	-3
29	4	3	-1
7	13	13	0
20	4	4	0
25	8	8	0

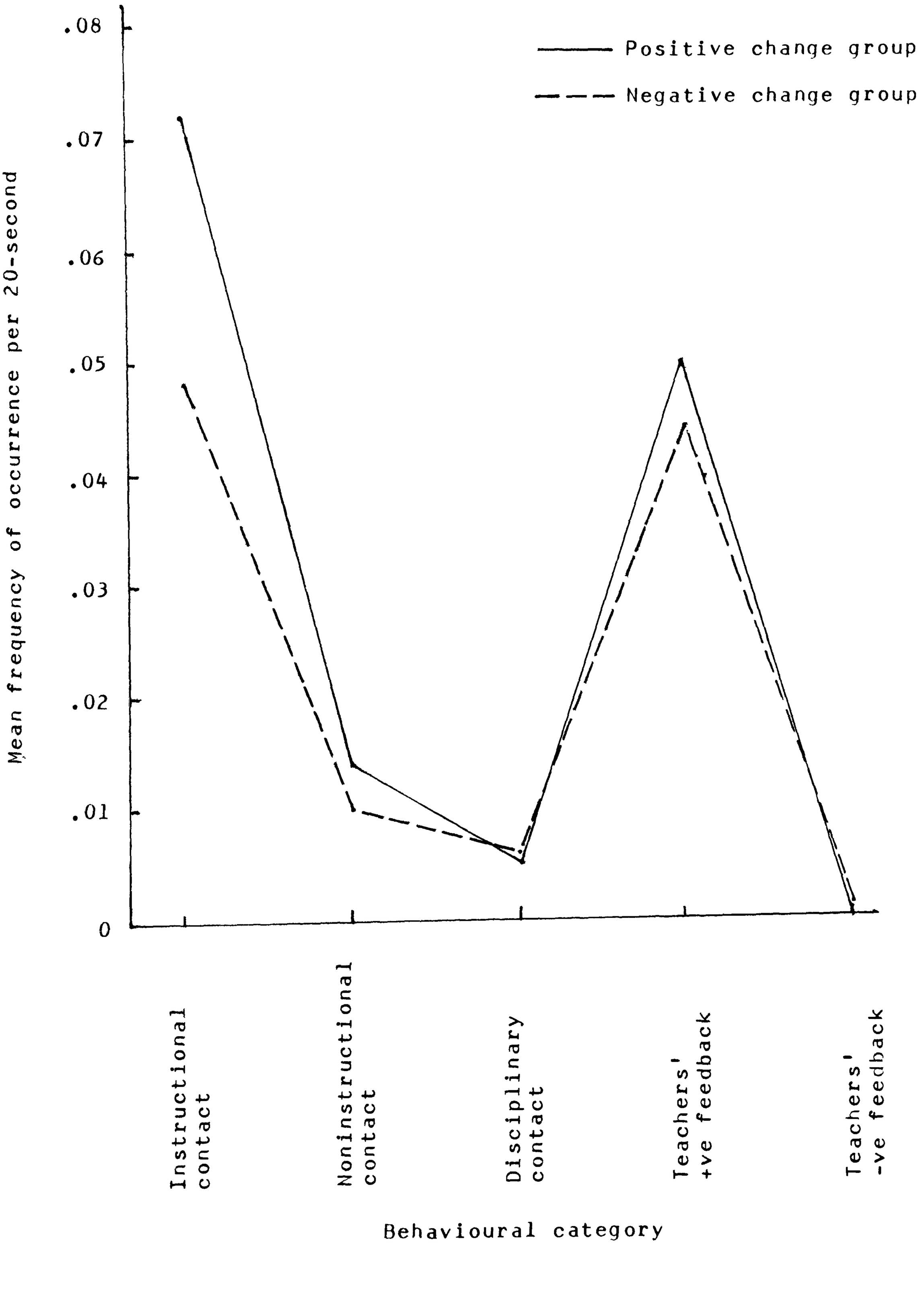
Table 48a Differences in mean frequencies (m.f.) of teachers' initiated contacts with children who showed positive change in self-esteem (P.C.S.E.) and those who showed negative change in self-esteem (N.C.S.E.)

Variable	P.C.S.E. (N= 7) m.f.	N.C.S.E. (N=19) m.f.	U-value C.R.=32	z-value	Significant level
Instructional					
Ask Q	0.0222	0.0167	47.0	1.1272	p<0.258
G-Inst	0.0502	0.0315	49.5	0.9827	p<0.327
Total	0.0723	0.0482	48.0	1.0694	p<0.285
Noninstructional					
Ask Q	0.0025	0.0035	61.5	0.2890	p<0.772
G-Inst	0.0112	0.0064	36.5	1.7342	p<0.084
Total	0.0138	0.0099	42.0	1.4163	p<0.156
Discipline	0.0048	0.0062	48.0	1.0694	p<0.285
Grand Total	0.0909	0.0642	50.0	0.9538	p<0.342

Table 48b Differences in mean frequencies (m.f.) of teachers' responses to children who showed positive change in self-esteem (P.C.S.E.) and those who showed negative change in self-esteem (N.C.S.E.)

Variable	P.C.S.E. (N= 7)	N.C.S.E. (N=19)	U-value C.R.=32	z-value	Significant level
Instructional(+ve)					
Ans P's Q/S/In	0.0284	0.0277	64.0	0.1445	p<0.889
Ans + Acpt	0.0026	0.0014	53.0	0.7804	p<0.435
An + Ac + Pr	0.0025	0.0008	42.0	1.4163	p<0.156
Ans + Cort	0.0092	0.0037	39.5	1.5608	p<0.119
Total	0.0428	0.0336	46.0	1.1851	p<0.234
Noninstructional(+ve)					
Ans P's Q/S/In	0.0055	0.0078	53.0	0.7804	p<0.435
Give permission	0.0013	0.0029	55.0	0.6648	p<0.509
Total	0.0068	0.0107	50.5	0.9249	p<0.358
+ve FB Total	0.0495	0.0443	57.0	0.5492	p<0.582
Instructional(-ve)					
Ignore Q/A/S/C	0.0000	0.0008	63.0	0.2023	p<0.841
Reject Q/A/S/C	0.0000	0.0000	66.5	0.0000	p<1.000
Reject + Crit	0.0000	0.0000	66.5	0.0000	p<1.000
Total	0.0000	0.0008	63.0	0.2023	p<0.841
Noninstructional(-ve)					
Reject	0.0000	0.0005	63.0	0.2023	p<0.841
No reaction	0.0000	0.0000	66.5	0.0000	p<1.000
Total	0.0000	0.0005	63.0	0.2023	p<0.841
-ve FB Total	0.0000	0.0013	63.0	0.2023	p<0.841
Grand Total	0.0495	0.0456	58.0	0.4914	p<0.624

Figure 31 Differences in mean frequencies of teachers' interactions with children who showed positive change in self-esteem and those who showed negative change in self-esteem



responses to these children. As a whole, teachers usually responded positively to their children's contacts and seldomly gave negative responses to them.

As the results in testing the sixth hypothesis indicated that teachers' evaluation of children's self-esteem had not been changed significantly at the end of the study, a series of questions was set to explore further the relationships between the frequencies of children's classroom behaviour and teachers' final evaluation of their self-esteem. The first question was "Is there any relationship between the frequencies of children's "on-task" and "off-task" behaviours and their self-esteem scores assessed by their teachers at the final stage of the study?" The second question was "What is the relationship between the children's interactions with teachers and their self-esteem scores assessed by their teachers at the end of the study?" To answer these two questions, Pearson product-moment correlation coefficients were calculated with the results presented in Table 49. As revealed by the product-moment coefficients, there

Table 49 Correlations between frequencies of children's classroom behaviour and the teacher-evaluated self-esteem scores in the final stage of the study (N = 29)

Behavioural Category	Product-moment coefficient	Significant level
On-task	-0.230	N.S.
Off-task	0.230	N.S.
Instructional contact	-0.101	N.S.
Noninstructional contact	-0.273	N.S.
Total initiated contact	-0.131	N.S.
Positive response	0.312	N.S.
Negative response	0.174	N.S.
Total response	0.324	N.S.

was no significant relationship between students' classroom behaviour and the teacher-evaluated self-esteem scores in the final stage of the study.

Since the above analyses showed that no significant relationship existed between the frequencies of pupils' classroom behaviour and the teacher-evaluated self-esteem scores at the end of the study, another question to be answered was "How did children with different levels of self-esteem interact with their class teachers?" To investigate the differences among the four self-esteem groups (HH, HL, LL, and LH) in their contacts with their teachers, mean frequencies of occurrence of all behavioural categories exhibited by the four self-esteem groups were examined by the Kruskal-Wallis one-way analysis of variance.[1]

As depicted in Table 50a, no significant difference was found among the four self-esteem groups in their "on-task" and "off-task" behaviours. Although the Low-Low (LL) group spent more time than the other three groups on the "on-task" activities, yet no significant difference was indicated by the H-value. During the "off-task" period, children in each self-esteem group showed more distracted behaviour, followed by talking and/or playing on their own. Nevertheless, they seldomly disturbed other people in the classroom. In Table 50c, the H-values revealed only one significant group difference: children of the High-High (HH) group gave more negative responses to their teachers' noninstructional contacts than did the children of the other three self-esteem groups. No further significant differences among the four self-esteem groups were identified

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1 Example for the computation of the H-value using the Kruskal-Wallis one-way analysis of variance is presented in Appendix 2j.

Table 50a Differences in mean frequencies (m.f.) of the "on-task" and "off-task" behaviours among the four self-esteem groups (HH = High-High group; HL = High-Low group; LL = Low-Low group; LH = Low-High group)

Variable	HH (N=6) m.f.	HL (N=8) m.f.	LL (N=7) m.f.	LH (N=8) m.f.	H-value
On Task					
Subject-I	0.4999	0.5521	0.5299	0.5226	0.52
Subject-G	0.1598	0.1676	0.2239	0.1734	4.47
Nonsubj-I	0.0659	0.0541	0.0560	0.0594	0.31
Nonsubj-G	0.0219	0.0121	0.0189	0.0157	0.83
Total	0.7474	0.7858	0.8288	0.7711	2.35
Off Task					
Routine work	0.0063	0.0082	0.0035	0.0049	1.79
Distracted	0.1931	0.1471	0.1220	0.1757	4.54
Disturbing	0.0080	0.0093	0.0053	0.0078	1.60
Playing-I	0.0162	0.0102	0.0070	0.0057	4.83
Playing-G	0.0068	0.0060	0.0068	0.0084	0.05
Talking	0.0222	0.0334	0.0268	0.0264	0.41
Total	0.2527	0.2142	0.1712	0.2289	2.36

Table 50b Differences in mean frequencies (m.f.) of initiated contacts with their teachers among the four self-esteem groups (HH = High-High group; HL = High-Low group; LL = Low-Low group; LH = Low-High group)

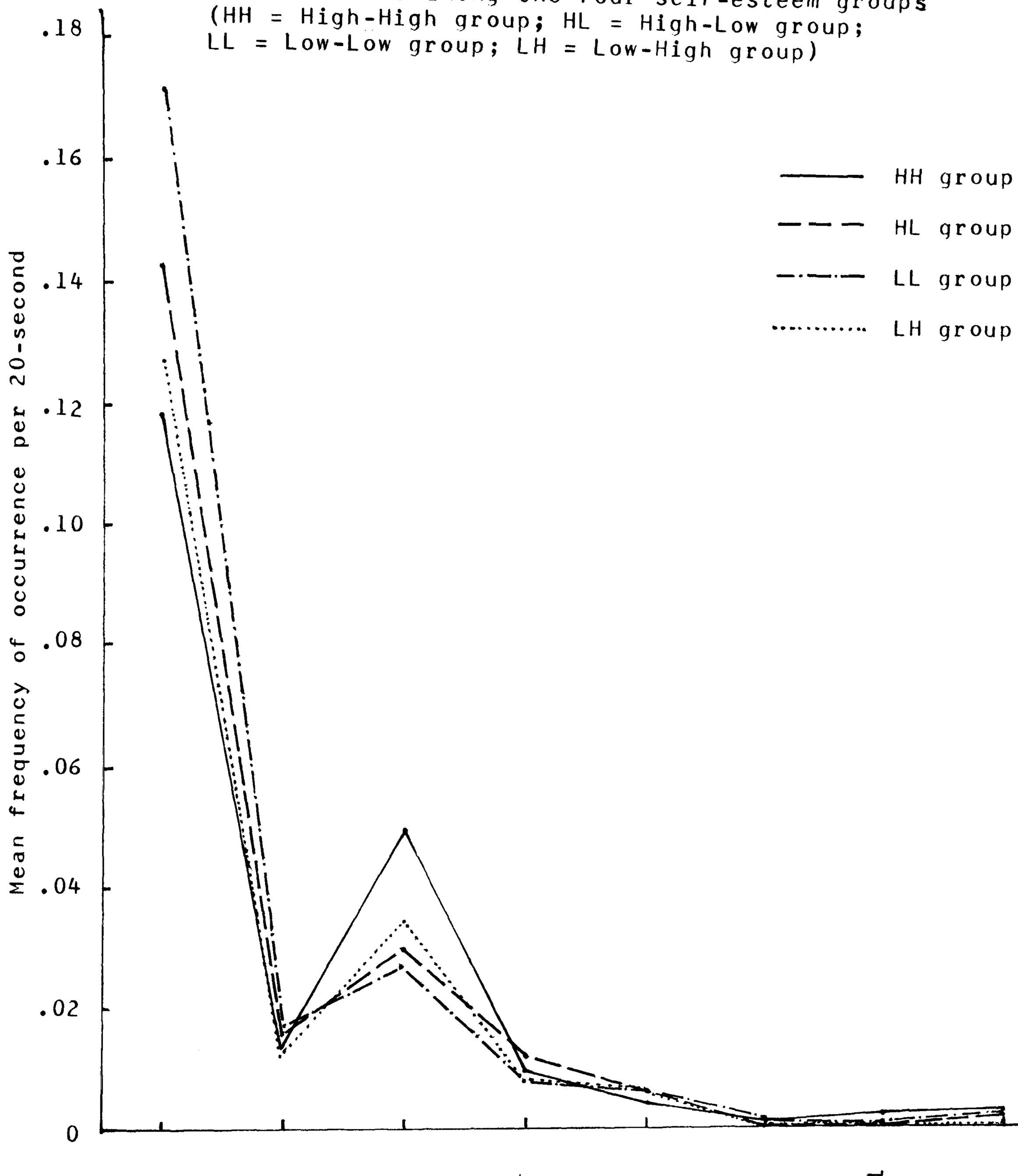
Variable	HH (N=6) m.f.	HL (N=8) m.f.	LL (N=7) m.f.	LH (N=8) m.f.	H-value
Instructional					
Ask Q	0.0143	0.0199	0.0214	0.0137	2.14
Ans Q	0.0122	0.0191	0.0165	0.0111	4.59
Give S/In	0.0132	0.0139	0.0138	0.0149	0.29
Wait C/I	0.0785	0.0893	0.1190	0.0863	1.43
Total	0.1181	0.1423	0.1707	0.1260	3.28
Noninstructional					
Ask Q	0.0052	0.0075	0.0057	0.0031	6.36
Rou-W	0.0034	0.0036	0.0030	0.0045	0.65
Give S/In	0.0052	0.0040	0.0078	0.0036	2.14
Total	0.0138	0.0151	0.0166	0.0112	2.40
Grand Total	0.1320	0.1574	0.1873	0.1371	3.45

Table 50c Differences in mean frequencies (m.f.) of responses to their teachers among the four self-esteem group (HH = High-High group; HL = High-Low group; LL = Low-Low group; LH = Low-High group)

Variable	HH (N=6) m.f.	HL (N=8) m.f.	LL (N=7) m.f.	LH (N=8) m.f.	H-value
Instructional(+ve)					
Ask T's Q	0.0256	0.0127	0.0127	0.0152	5.16
Follow Inst	0.0234	0.0168	0.0147	0.0192	1.48
Total	0.0490	0.0295	0.0273	0.0344	2.91
Noninstructional(+ve)					
Ans T's Q	0.0040	0.0030	0.0022	0.0021	1.22
Follow Inst	0.0062	0.0090	0.0066	0.0062	0.79
Total	0.0101	0.0119	0.0088	0.0083	1.70
Discipline(+ve)					
Show response	0.0037	0.0055	0.0063	0.0047	0.40
+ve FB Total	0.0629	0.0469	0.0424	0.0473	1.70
Instructional(-ve)	0.0013	0.0000	0.0010	0.0008	3.26
Noninstructional(-ve)	0.0019	0.0003	0.0000	0.0000	8.46*
Discipline(-ve)	0.0028	0.0020	0.0010	0.0011	1.05
-ve FB Total	0.0060	0.0023	0.0020	0.0019	1.91
Grand Total	0.0688	0.0492	0.0444	0.0493	2.15

* $p<0.05$

Figure 32 Differences in mean frequencies of interactions with teachers among the four self-esteem groups (HH = High-High group; HL = High-Low group; LL = Low-Low group; LH = Low-High group)



for any of the categories of behavioural interactions with teachers (Table 50b and Table 50c).

Although no significant differences were found in their interactions with teachers, the mean frequencies of behaviour showed that children in the four self-esteem groups made more or less the same frequency of initiated contacts with their teachers and they reacted to their teachers' initiated contacts in a similar way (Figure 32). Data in Table 50b showed that, in initiating contacts with teachers, children in each self-esteem group made more instructional contacts than noninstructional contacts. In addition, Table 50c illustrated that children in the four self-esteem groups usually responded positively to their teachers' contacts.

Since the results in section B indicated that the high self-esteem subjects did not differ significantly from the low self-esteem subjects in their contacts with class teachers and in their "on-task" and "off-task" behaviours, Pearson product-moment coefficients were computed to investigate the relationship between children's self-esteem scores at the beginning of the study and the mean frequencies of their classroom behaviour. As shown in Table 51, no significant relationship was identified between children's self-esteem scores and the frequencies of their classroom behaviour.

A similar series of statistical analyses to examine the relationship between teacher-evaluated self-esteem scores at the beginning of the study and the frequencies of their classroom interactions with children were conducted with the results presented in Table 52. Of all the behavioural categories, the product-moment coefficients showed only three significant relationships between teacher-evaluated self-esteem scores and

Table 51 Correlations between children's self-esteem scores and frequencies of their classroom behaviour and interactions with their teachers (N = 29)

Behavioural category	Product-moment coefficient	Significant level
On task	-o.156	N.S.
Off task	0.156	N.S.
Instructional contact	-0.169	N.S.
Noninstructional contact	-0.014	N.S.
Total initiated contact	-0.168	N.S.
Positive response	0.253	N.S.
Negative response	0.105	N.S.
Total response	0.253	N.S.

Table 52 Correlations between teacher-evaluated self-esteem scores and frequencies of their classroom interactions with children (N = 29)

Behavioural category	Product-moment coefficient	Significant level
Instructional contact	0.454	p<0.01
Noninstructional contact	-0.080	N.S.
Disciplinary contact	-0.068	N.S.
Total initiated contact	0.322	N.S.
Positive response	-0.377	p<0.05
Negative response	-0.231	N.S.
Total response	-0.383	p<0.05

the frequencies of their classroom contacts with children. Thus, teacher-evaluated self-esteem scores were positively and significantly related to their frequencies of instructtonal contacts with children. On the other hand, there was a negative relationship between teacher-evaluated self-esteem scores and their frequencies of responses to their children's contacts. The data also revealed that teachers gave more positive responses to those children in the low teacher-evaluated group.

D. Summary of the Findings

In summary, data in this chapter strongly supported five of the six research null hypotheses testing the relationship between children's self-esteem, teachers' evaluation and teacher-pupil interactions in the ESN(M) classroom. The results indicated that children with the same level of self-reported self-esteem showed almost an equal number of interactions with their teachers, no matter how their teachers evaluated them. Similarly, the findings also illustrated the fact that teachers' contacts with their children in the classroom were based on their own expectations of their children. There was evidence that teachers' evaluation of their children's self-esteem did not change significantly over a period of time. On the contrary, children's self-esteem scores decreased significantly during the period of the study.

In addition to these results related to the six research hypotheses, the analyses discussed in this chapter also provided answers to the seven research questions concerning other aspects of the self-esteem of mentally-handicapped children. The present study indicated no significant sex differences in responding to the revised Children's Self-Concept Scale. No significant differences were observed on either the "on-task" or the "off-task" behaviour shown by the high self-esteem subjects and the low self-esteem subjects. Likewise, no significant differences were detected between the high self-esteem group and the low self-esteem group on the number of contacts they made with their teachers. The results, however, revealed that teachers responded more to the contacts initiated by the low teacher-evaluated group than those initiated by the high teacher-evaluated group. Especially, the teachers gave more positive feedback to the

instructional contacts made by the low teacher-evaluated children. Overall, no significant differences were identified on teachers' total initiated contacts with children in both teacher-evaluated groups, except teachers made more instructional contacts with the children in the high teacher-evaluated group.

To examine the relationships between teacher-evaluated self-esteem scores and the scores of children in the reading test, the anxiety scale, and the behaviour questionnaire, the results indicated a positive relationship between teacher-evaluated scores and children's behavioural scores, a negative relationship between teacher-evaluated scores and children's reading scores, and little relationship between teacher-evaluated scores and children's anxiety scores. Besides, the study showed clearly that the high self-esteem children scored higher on the anxiety scale but lower on the reading test. There were no significant differences in teachers' assessment of children in the two self-esteem groups on the self-esteem inventory and the behaviour questionnaire. In addition, the analyses illustrated that the high teacher-evaluated subjects had higher behavioural scores and lower reading scores than the low teacher-evaluated subjects, but their scores on the anxiety scale and the self-esteem inventory were almost the same.

Further analysis of data revealed that no significant relationship existed between the frequencies of teachers' classroom interactions and the children's own self-esteem scores at the end of the study. The same trend was identified in examining the relationship between the frequencies of children's classroom behaviour and teacher-evaluated self-esteem scores at the final stage of the research. No significant difference was observed in teachers' contacts between children who finally showed

positive change in self-esteem and those who showed negative change in self-esteem. The results also indicated that no significant differences were detected among the four self-esteem groups in their contacts with class teachers. Although the data revealed that no significant relationship existed between children's self-esteem scores and the frequencies of occurrence of their classroom behaviour, yet a positive relationship between teacher-evaluated self-esteem scores and the frequencies of their instructional contacts with children was identified, as well as a negative relationship between teacher-evaluated self-esteem scores and the frequencies of their positive response to children's initiated contacts.

V. CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

A. Summary of the Study

This study was an outgrowth of the methodological problems in the study of self-concept with both "normal" and "retarded" populations and the paucity of research on exploring the relationship between self-esteem and classroom behaviours of mentally-handicapped children. Although it has been agreed among psychologists and educators that self-esteem is an important factor underlying individual behaviour and that children's self-concepts are changed and modified in schools through their daily interactions with a "significant other" - the teacher, little attention has been directed at investigating how children with different levels of self-esteem interact with their teachers. Nor has attention been paid to how teachers' evaluations of children's self-esteem affect their classroom contacts with the children which may in turn modify or reinforce children's self-esteem. Usually, researchers studying the change of people's self-concept only concentrate on the differences between the pretest and the posttest self-concept scores, without paying attention to the process variables which may be attributed to the change. Therefore, this investigator also examined process variables, i.e., teacher-pupil classroom interactions, to discover whether or not any change of children's self-esteem could be related to teacher-pupil interactions.

Based on the assumptions that human behaviour is directed and guided by one's self-concept, that teacher's expectations of a child will affect his interaction with that child, and that self-concept develops through social interaction, the main purposes of this study were, in general terms, to examine the effect of

children's self-esteem on their interactions with their teachers, to study the effect of teachers' evaluation of students' self-esteem upon their classroom contacts with students, and to find out whether or not children's self-esteem or teachers' evaluation of children's self-esteem may change over a period of time. In addition to the main purposes, other objectives of the research were (1) to determine which available self-esteem instruments is most suitable for assessing the self-esteem of mentally-handicapped preadolescents, (2) to develop an observational system for recording teacher-pupil interactions in special classrooms, (3) to find out the differences between mentally-handicapped boys and mentally-handicapped girls in responding to the self-esteem inventory, (4) to examine the relationship between teacher-evaluated self-esteem scores and children's scores on the reading test, the anxiety scale, and the behavioural questionnaire, (5) to investigate how the high self-esteem children score differently from the low self-esteem children on the self-esteem inventory, teachers' evaluation of children's self-esteem, the anxiety scale, the reading test, and the behavioural questionnaire, (6) to discover the differences in scores between the high teacher-evaluated children and the low teacher-evaluated children on the self-esteem inventory, teachers' evaluation of children's self-esteem, the anxiety scale, the reading test, and the behavioural questionnaire, and (7) to study the effect of teacher-pupil interactions on children's self-esteem and teachers' evaluation of children's self-esteem. It was hoped that results of the study would clarify the relationship between personality and behaviour and provide suggestions to teachers in enhancing self-concept of students.

Initially, a pilot study was conducted to assess the suitability of various instruments which could be used in the main study and to develop an observational system for coding teacher-pupil interactions in special classrooms. The pilot study was carried out in five special schools located in both urban and suburban areas of north-east England during the summer term of the academic year 1980-1981. Two selected self-esteem inventories, the locus-of-control scale and the anxiety scale were administered orally by class-teachers to all ten- to twelve-year-old educationally-subnormal children. Simultaneously, an observational system was designed and refined based on the author's observations in special classrooms and some published observational schedules.

In the main study, the revised Children's Self-Concept Scale, the Children's Manifest Anxiety Scale, and the Young's Group Reading Test were given to two hundred and fifty ten- to twelve-year-old ESN(M) children in six special schools within one county. At the same time, teachers of these children were asked to evaluate their children's self-esteem with the revised Children's Self-Concept Scale and to complete the Behaviour Questionnaire for each child. Then, twenty-nine children and four teachers were selected from four classes in two special schools as the sample for more detailed observations. They were observed by this investigator in the classroom setting from October, 1981 to April, 1982. During each one-hour observation session, both children's classroom behaviour and teacher-pupil interactions were recorded on a specifically designed record sheet. Re-measuring and re-assessing of these children's self-esteem were carried out in the middle and at the end of the research project.

Altogether, six null hypotheses and seven research questions were formulated to explore the self-esteem of mentally-handicapped preadolescents and the relationships between self-esteem and other variables being investigated in the study. Using both parametric and nonparametric statistics for data analyses, the results of this study strongly supported five of the research hypotheses: (1) children with both high self-rating and high teacher-rating self-esteem do not differ significantly from children with high self-rating but low teacher-rating self-esteem in their contacts with teachers; (2) children with both low self-rating and low teacher-rating self-esteem do not differ significantly from children with low self-rating but high teacher-rating self-esteem in their contacts with teachers; (3) teachers' contacts with children having both high teacher-rating and high self-rating self-esteem do not differ significantly from their contacts with children having high teacher-rating but low self-rating self-esteem; (4) teachers' contacts with children having both low teacher-rating and low self-rating self-esteem do not differ significantly from their contacts with children having low teacher-rating but high self-rating self-esteem; and (5) there is no significant change in teachers' evaluation of children's self-esteem over a period of time. The findings, however, did not confirm the fifth hypothesis proposing that there is no significant change in the self-esteem of children over a period of time. In contrast, there was evidence showing that children's self-esteem scores dropped significantly throughout the study, especially the high self-esteem subjects.

Concerning the seven research questions, analyses of data in the study revealed the following results:

1. No significant differences were found between the mentally-handicapped boys and the mentally-handicapped girls in responding to the revised Piers-Harris Children's Self-Concept Scale. Item analyses of the Scale, however, showed that boys had higher scores on item 16 (I often get into trouble) and item 27 (I get into lots of fights) whereas girls obtained higher scores on item 8 (I give up easily) and item 35 (I am often afraid).
2. The high self-esteem subjects did not differ significantly from the low self-esteem subjects in their "on-task" and "off-task" behaviours.
3. No significant differences were observed between the high self-esteem group and the low self-esteem group in their interactions with class teachers.
4. Teachers made more instructional contacts with the high teacher-evaluated subjects than with the low teacher-evaluated subjects. In responding to children's contacts, teachers responded more to the contacts initiated by the low teacher-evaluated group than those initiated by the high teacher-evaluated group; especially they gave more positive feedback to those instructional contacts initiated by the low teacher-evaluated group.
5. Teacher-evaluated self-esteem scores were positively and significantly related to children's behavioural scores but negatively related to children's reading scores. No relationship, however, existed between teacher-evaluated self-esteem scores and children's anxiety scores.
6. The high self-esteem children scored higher on the self-esteem inventory and the anxiety scale but lower on the reading test than did the low self-esteem children. There were no

significant differences in teachers' assessment of children in the two self-esteem groups on the self-esteem inventory and the behaviour questionnaire.

7. The high teacher-evaluated subjects had higher scores on the behaviour questionnaire but lower scores on the reading test than did the low teacher-evaluated subjects, but the scores of these two groups on the anxiety scale and the self-esteem inventory were almost the same.

In addition to the above mentioned results for testing the hypotheses and answering the research questions, further analyses of data provided the following additional findings:

1. Only one significant relationship existed between the frequencies of teachers' classroom interactions with the students and the self-esteem scores of children at the end of the study; this was a positive significant relationship between the frequencies of teachers' noninstructional contacts and children's self-esteem scores at the final stage of the project.
2. There were no significant differences in teachers' interactions with children who showed positive change in self-esteem and those who showed negative change in self-esteem throughout the period of the study.
3. No significant relationship was identified in examining the relationships between the frequencies of children's classroom behaviours and their final teacher-evaluated self-esteem scores.
4. Children of the four self-esteem groups did not show significant differences in their contacts with class teachers, either in making contacts with or giving responses to teachers.
5. There was no significant relationship between children's

self-esteem scores and the frequencies of their classroom behaviours.

6. Teacher-evaluated self-esteem scores of the children were positively and significantly related to the teachers' frequencies of instructional contacts with children but negatively related to their frequencies of total responses to their children's initiated contacts.

B. Discussion of the Results

The results of this study provide four general conclusions which will be discussed in the following sections. The first important outcome of the study shows that the high self-esteem children do not differ from the low self-esteem children in their interactions with class teachers and that there is no significant relationship existing between children's self-esteem scores and the frequencies of their interactions with teachers. In other words, this study fails to support the theoretical assumption that an individual's behaviour is guided and directed by one's self-concept or self-esteem. It also raises a question concerning the use of the "trait model" in personality for predicting and explaining human behaviour.

A number of plausible reasons may be set forth for explaining the failure of the present study to support the "trait model" which assumes that "internal factors or stable, latent dispositions are the major determinants of actual behaviour" (Endler, 1982, p. 216). The first reason is that although a person's behaviour may be affected by his self-esteem, yet during social interaction he may make use of various cognitive strategies to decide on how to behave or interact in a particular situation (Ebbesen, 1980; Langer, 1978). In recent years, many social-cognitive

psychologists strongly emphasise that "human beings are thinkers and information processors about social stimuli" (Forgas, 1981b, p. 3) to reject the behaviourist conception of "human beings as mechanistic reactors to environmental manipulations" (Forgas, 1981b, p. 3).[1] They propose that "any comprehensive account of social conduct is seriously incomplete without due attention to cognitive processes" (Berkowitz, 1978, p. xiii). When children with different levels of self-esteem interact with their teachers and perceive how their teachers feel about them and treat them (Davidson and Lang, 1960; Gustafson and Owens, 1971; Weinstein and Middlestadt, 1979; Weinstein, Middlestadt, Brattesani, and Marshall, 1980) they may behave in a way either confirming or opposing their self-esteem. For instance, if they think they can take advantage of a specific classroom situation and so be able to manipulate their teachers, they will behave according to their perception of the situation, no matter how they evaluate themselves. Therefore, in studying the social interaction of human beings, we should consider the cognitive responses of the individual because human beings are "actively interpreting rather than passively registering the events that unfold ... in everyday experience" (Ross, 1981, p. 2) and "how they react is not a simple function of how one acted towards them. Rather, how they react is mediated by their inner states, ..., such as how they interpreted one's act and what they hope to accomplish by their response" (Hoffman, 1981, p. 68).

The second possible explanation pertains to the complexity of studying human behaviour. For a long time, it has been agreed among personality-social psychologists that human behaviour is

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1 This concept is also expressed by Cantor and Kihlstrom (1981, p. xii), Feather (1982, p. 263), Magnusson (1981b, p. 21), and Ross (1981, p. 2).

determined by a number of factors, some are internal such as one's latent disposition, some are external such as environmental variables, and some are a combination of the two (Cantor and Kihlstrom, 1981; Endler, 1977; Lewin, 1935; Magnusson, 1981a; Murray, 1938, 1951). It is often unwise to study certain behaviour without considering the contribution of different variables. This view has been particularly expressed by Mischel (1973) when he writes "what a person does tends to be relatively specific to a host of variables, and that behaviour is multiply determined by all of them rather than being the product of widely generalised dispositions" (p. 256). Although self-esteem has been regarded as a mechanism for guiding and directing behaviour, yet in studying social behaviour, we should examine the effects of other personality constructs on such behaviour. In addition, we should examine the situation in which such behaviour is exhibited and not only a person's actual physical environment, but also his perceived situation (Magnusson, 1981b), i.e., "the meaning that an individual ascribes to a situation" (Endler and Edwards, 1978, p. 145). Hence, the best approach is to accept the fact that "behaviour is a function of both the person and the situation" (Bem, 1982, p. 173). Since the present study only focuses on the effect of self-esteem on pupils' interactions with their teachers, without examining the joint function of both the person and the situation on influencing the nature and direction of behaviour, this limitation may be a possible explanation of the lack of difference between the two self-esteem groups in their interactions with class teachers.

Another possible reason may be related to the classroom climate and activities in special classrooms. Since most special

schools for the mentally-handicapped children are "open settings" and the teacher-pupil ratio is small, the relationships between teachers and students are well established. As a result, students in special classrooms may make contact with their teachers at any time once when they need help, without being afraid of their teachers. Also, most children in the study have been educated in the same school for many years and some of them have been acquainted with the same teacher for more than a year. Therefore, they may have got so used to their classroom environment that many of their behaviours in classroom are "so over-rehearsed that they take place in isolation, with no psychological connection to other facets of the person" (Wicklund, 1982, p. 153). These "over-rehearsed" or "automated" behaviours may have contributed to the no relationship between children's self-esteem and their interactive behaviours in classrooms. Furthermore, each child in a special classroom has his own individual learning programme. Usually, teachers initiate contacts with a child when they give him instructions or correct his exercises. A child, on the other hand, makes contacts with his teacher only when he needs help or looks for instruction. Therefore, this type of "normal" teacher-pupil interaction may lead to no differences between students within the two self-esteem groups in the type and frequency of interactions with their class teachers.

Finally, the failure of this study to demonstrate a significant relationship between children's self-esteem and the frequencies of their interaction with teachers may be due to a methodological problem. In studying the self-esteem of a child, usually an investigator either measures a child's global self-esteem or his specific self-esteem. If he measures a child's global self-esteem, he should observe the child in different

settings to testify whether or not the child's global self-esteem is related to his behaviour. On the other hand, if he measures a child's specific self-esteem, e.g., a child's academic self-esteem in English, he should observe how the child behaves in English lessons. In this way, a child's self-esteem score may be a good predictor of his behaviour in English lessons. In discussing why attitudes have little value for the prediction of behaviour, Ajzen (1982) argues that "global attitudes towards an object (or personality traits) predict only the overall pattern of behaviour; they are of little value if we are interested in predicting a particular action with respect to the object. To predict a single behaviour we have to assess the person's attitude towards the behaviour in question" (p. 13). Thus, in order to get a more promising result, the observational system should be designed with the items of the self-esteem inventory or measuring children's specific self-esteem and observing them in situations which are related to the specific self-esteem being measured.

The second general conclusion drawn from this study is that, to a certain extent, teachers do interact differently with the high teacher-evaluated subjects than they do with the low teacher-evaluated subjects. Also, there are some significant relationships between teacher-evaluated self-esteem scores of students and the frequencies of their interactions with students. These findings partly support the teacher expectation model (Brophy, 1979; Good, 1981) proposing that "teachers form expectations of students' abilities; teachers interact differentially with students depending upon those expectations; and the expectations are directly related to students' achievement" (Wilkinson, 1981, p. 253). It is interesting to notice that, in this study, teachers initiate more instructional contacts with the high

teacher-evaluated groups than with the low teacher-evaluated group. In contrast, they give more positive feedback to the low teacher-evaluated children. According to Brophy and Good's classification of teachers in terms of their responses to students (1974, p. 122), this group of teachers can be described as proactive, or in Wilkinson's term this pattern of teacher-pupil interaction is a remedial type "in which the teacher attempts to assist the student who is perceived as less competent" (Wilkinson, 1981, p. 254). These teachers "meet the needs of low achievers with increased time and attention but yet not ignore the instructional needs of other students" (Good, 1980, p. 91). Although this description of teachers is oversimplified, yet it characterises a pattern of teacher style in special schools. But caution should be made when we interpret the results of classroom-expectancy studies. We should remember that both teacher and student expectations and behaviour are responsible for the differential patterns of classroom interactions, especially the joint effects of teachers' expectations about students and students' expectations about teachers on teacher-pupil interactions (Feldman and Prohaska, 1979; Feldman and Theiss, 1982; Rappaport and Rappaport, 1975; Smead and Chase, 1981; Zanna, Sheras, Cooper, and Shaw, 1975). Neglecting one of these variables may provide a partial or even misleading picture of classroom interaction phenomenon.

The third conclusion of this study is that the self-esteem scores of mentally-handicapped children decrease significantly over a period of time in special classrooms and that the change of children's self-esteem scores is not related to the frequencies of teachers' contacts with them. Although research and literature on self-esteem suggest that children's self-esteem

is modified and developed in schools through their interactions with teachers (Beane, Lipka, and Ludewig, 1980; Bush-Rossnagal and Vance, 1982; Del-Polito, 1980; Peck, Fox, and Marston, 1977), the present study does not confirm this assumption. One reason to explain why the change of children's self-esteem scores is not related to the frequencies of teacher-pupil interaction is that, besides teachers, other people in the classroom or school may function as "significant others" of students. In discussing this issue, Kash and Borich (1978) state that "teachers and other adults will not automatically become significant others" and that whether or not a teacher functions as a "significant other" is "determined by the degree of similarity between home and school" (p. 38). McGuire and McGuire (1982) also point out that there are sex differences and age trends in children's self-definition of themselves in terms of "significant others". For instance, "girls will define themselves in terms of significant others more than will boys" (p. 80), "they are more parochial (domestic and peer focused) in selecting the significant others" (p. 94) and their "self-concepts are more focused on mothers and brothers" (p. 94). With reference to age trends in the social self, McGuire and McGuire find that "as children mature from age 7 through 17 the social self occupies a progressively decreasing proportion of total self-space, and that the selection of the significant others in terms of whom one defines oneself becomes progressively more cosmopolitan" (p. 95). As the result of the complexity of this phenomenon, a teacher who is viewed as a "significant other" of one child may not function as the "significant other" for another child. If a child does not view the class teacher as his "significant other", teacher's interactions with him will have no influence on his developing-self.

Another explanation may be due to the way children perceive and interpret their teachers' contacts. As discussed at the beginning of this section, a person is "an active processor of information, organising and constructing experience into meaningful internal representations, and behaving not as an automaton but as a thoughtful, purposeful being" (Feather, 1982b, p. 3). Not only do situations influence individuals, but individuals also influence situations (Snyder, 1981a). During social interaction, individuals may have the freedom to choose to be where, when, and with whom they interact. In addition, they interpret social stimulus differently according to the way they perceive it. For instance, studies on student response to teachers' praise (Brophy, 1981a, 1981b, 1982; Kanouse, Gumpert, and Canavan-Gumpert, 1981; Morine-Dershimer, 1982) show that "praise is a social event, ... its effects are in part mediated by cognitive and attentional processes. ... the way in which praise is interpreted by the receiver determines much about how he responds to the praise" (Kanouse, Gumpert, and Canavan-Gumpert, 1981, p. 100). Therefore, "student response to teacher praise can be expected to vary from highly positive through neutral to highly negative" (Brophy, 1981a, p. 20). Although praise from teachers may enhance a child's self-esteem, yet the successful use of praise depends on children's interpretation and response to it. In this study teachers always respond positively to each child and, as a result, all their positive responses have no meaning to their students because children soon get used to the same positive feedback. So possibly for these reasons there is little relationship between the frequencies of teachers' interactions and children's self-esteem scores.

The indication of a change in children's self-esteem scores over a period of time supports the concept of momentary fluctuation in self-conception (Gergen, 1982). Besides the effect of social appraisal, individual's conception of self may be strongly influenced by self-observation, social comparison, and memory scanning (Gergen, 1982, pp. 135-138). During his daily experience in a classroom, a child from time to time observes his own actions and draws conclusions about who he is (Bem, 1972). For example, if a high academic self-esteem child gradually realises his limitations in school subjects, he may re-evaluate his academic self-esteem and, thereby, his score may be lowered on the self-esteem inventory. As a child moves into adolescence and his social world develops, he will compare himself with similar others, especially his classmates (Suls and Mullen, 1982, p. 108). If all his classmates have low self-esteem, the child may re-evaluate himself so that he scores lower on the self-esteem inventory. In addition to self observation and social comparison, "people may review certain past memories about themselves and draw a resulting conclusion about their major characteristics" (Gergen, 1982, p. 137). An increase in cognitive sophistication, exemplified by the development of concrete operational and then formal operational thought (Inhelder and Piaget, 1958), enables the preadolescent to recall several past instances to justify his present self-concept. If his past events are in contradiction to his present self-evaluation, he may re-evaluate his self-concept. This explanation, however, should be treated as very tentative because no research has been conducted to test this hypotheses with the "mentally-handicapped" children.

The last possible reason for explaining why children's self-esteem changed negatively in this study is that there was no particularly designed programme for enhancing children's self-esteem used in the research. Accumulative evidence illustrates that, through some specially designed programmes, children's self-esteem can be changed either positively or negatively (Bragg, 1980; Chamblee, 1976; Danzig, 1977; Jones, 1978; Kulp, 1978). In order to facilitate the development of children's self-esteem, teachers should plan some programmes aiming at enhancing children's self-image. This is because simply telling children that they are successful, encouraging them to persist, or flattering or rewarding them are techniques unlikely to increase children's self-esteem (Brookover, LePere, Hamchek, Thomas, and Erickson, 1965; Weiner, Heckhausen, Meyer, and Cook, 1972). Without a particularly designed programme, children's self-esteem may not improve or may even deteriorate. Therefore, this study may provide one reason to explain why some previous research demonstrated deterioration of mentally-handicapped children's self-esteem in special schools (Carroll, 1967; Meyerowitz, 1962; Welch, 1965) and illustrates that pupils' self-concept cannot be improved through "normal" teacher-pupil interactions.

The fourth conclusion of this study is that teachers' evaluation of children's self-esteem doesnot change over a period of time and that frequencies of children's interactions with teachers do not relate to teacher-evaluated self-esteem scores. These results confirm the general belief that once an impression of a person has been formed in our mind, no matter whether it is good or bad, it is difficult, if not impossible, to change except when the behaviour of that person extremely contradicts

our prediction or expectation. In order to deal effectively with other people in social situations, we may initially categorise people into certain social groups "on the basis of their personalities, working habits, place of residence, careers, physical characteristics, and so forth" (Wilder and Cooper, 1981, p. 251).[1] Based on this impression which normally "consists of a set of personality trait labels" (Wyer and Srull, 1981, p. 161), we function as intuitive psychologists (Nisbett and Ross, 1980; Ross, 1981; Snyder and Gangestad, 1981; Weger and Vallacher, 1977) unconsciously forming a set of hypotheses about other people and "systematically us(ing) subsequent social interactions as opportunities to actively collect behavioural evidence" to test these hypotheses (Snyder, 1981b, p. 277). Although there may be some inferential errors in our hypotheses about other people (Hamilton, 1976; Ross, 1977; Snyder, 1976), we "preferentially solicit evidence whose presence would tend to confirm (our) hypotheses about other people" (Snyder, 1981b, p. 295). Except when all findings fail to support our testing hypotheses, we seldom change our initial impression or expectations of other people.

In this study, teachers may initially formulate some expectations or impressions of the mentally-handicapped children through different information or misinformation (Hackney, 1982; Safran, Safran, and Orlansky, 1982). Then, with some hypotheses about mentally-handicapped children in their minds, they interact with their students in different ways and observe how their

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1 For a more detail discussion about "social categorisation" or "social stereotype", readers can consult Borgida, Locksley, and Brekke (1981); Cantor and Mischel (1979); Forgas (1980); Hamilton (1981); Miller (1982); Rosch (1977); Tajfel and Forgas (1981), and Taylor (1981).

students react to them to test their hypotheses. As revealed in the observational data, children with different levels of self-esteem do not differ in their behaviours and interactions with their teachers. So, their overall behaviours cannot modify or change their teachers' initial impression of them and in turn support teachers' initiated hypotheses about them. As a result, there is little or no change in teacher-evaluated self-esteem scores of children in the re-assessment session.

Why do children's frequencies of interactions with teachers not relate to the teacher-evaluated self-esteem scores at the end of the study? From the observational data collected in the classrooms, children with different levels of self-esteem interact with their teachers almost in the same way. Most of their initiated contacts are related to subject matter and they always respond positively to their teachers' contacts. The differences among the four self-esteem groups are not so evident as to allow teachers to recognise readily any change of a particular child especially when teachers have such busy lives in the classroom (Jackson, 1968). Therefore, when they reassess children's self-esteem they may not always consider possible changes in classroom behaviour of their students and may simply use their general perceptions or initial impressions of the children as criteria for assessment. So, this may explain why teachers' final evaluation of children's self-esteem doesnot relate to the frequencies of children's interaction with them.

In addition to the four general conclusions discussed in the previous paragraphs, two more results of the study are of particular interest for further discussion, namely, sex differences in self-esteem and the relationship between self-esteem and anxiety. To date, studies on sex differences of both "normal"

and "handicapped" populations have produced a varied set of results (Lawrence and Winschel, 1973; Loebs and Horst, 1978; Wylie, 1979). For instance, when Ringness (1961) investigated differences in self-concept among boys and girls of superior, average, and retarded mental development, he discovered that the self-reported self-esteem of girls exceeded that of boys. In another study, Snyder (1966) reported a trend in which adolescent girls earned higher self-esteem scores than boys on two self-esteem inventories. Lo Bianco (1966) found higher self-concepts for younger girls than for boys, but this trend was reversed among older subjects. In some cases, however, no sex differences were identified in the self-esteem of mentally-handicapped children (Bauer, 1970; Mayer, 1966). Since researchers use different self-esteem instruments for measuring the self-esteem of mentally-handicapped children and the age groups differ from one study to another, it is difficult to draw a firm conclusion about the sex differences in self-esteem. This present study, however, indicates that there is an absence of statistically significant sex differences in global self-esteem scores of the mentally-handicapped preadolescents.

Sub-analyses of the self-esteem scale, recommended by Deaux (1977) and Wylie (1979), however, reveal sex differences: the mentally-handicapped boys, as compared with the mentally-handicapped girls, admit that they often get into trouble and become involved in fighting. On the other hand, the mentally-handicapped girls expressed stronger agreement than the corresponding group of boys on two of the items, namely, "I give up easily" and "I am often afraid". These results illustrate some differences in the general characteristics of boys and girls.

Girls are usually regarded as more helpless than boys in achievement situations (Dweck and Goetz, 1978; Dweck and Licht, 1980; Dweck and Wortman, 1982; Janoff-Bulman and Brickman, 1982). When they encounter difficulties they are more likely to condemn their abilities and show decreased persistence or impaired performance. Quite often, girls show lower expectancies of success than do boys as the result of "fear of success" (Horner, 1972). They also avoid tasks that pose a challenge or test of skill. In order to avoid facing failure, if the task is difficult, girls may prefer to give up easily.

In a review on sex differences on fear and anxiety, Maccoby and Jacklin (1978) concluded that "when there is a (sex) difference, it is in the direction of greater reported fearfulness among girls" (p. 184). Concerning studies of anxiety, they concluded that "the greater general anxiety of girls and women is fairly consistent across studies. Measures of test anxiety frequently find no difference, but when there is a difference girls score higher" (p. 186). The present study fits in with the findings of sex differences in studies on fear and anxiety. Caution, however, should be made in confirming this statement because "boys in our culture are taught that they should not exhibit feminine traits" (Dusek, 1980, p.98). Generally, girls are allowed to express anxiety more than boys (Davidson, 1959; Shepherd-Look, 1982), therefore "the sex differences in anxiety scores might still be a function of boys' greater defensiveness" (Maccoby and Jacklin, 1978, p. 186) and the responses may not reflect the real sex differences in anxiety.

Why do the mentally-handicapped boys in the study admit that they often get into a lot of fights and cause trouble? Results of previous studies on aggressiveness firmly conclude

that boys are more aggressive than girls and that aggressiveness is conceived as a masculine trait which is unanimously accepted by society (Maccoby, 1980; Maccoby and Jacklin, 1974, 1978; Mussen, 1983). There is a lot of evidence indicating boys are both more physically and verbally aggressive than girls in a wide variety of situations (Barrett, 1979; Caplan, 1979; Harris and Siebel, 1975; Poorman, Donnerstein, and Donnerstein, 1976) and even in a number of different cultures (Whiting and Whiting, 1975). Since aggressiveness of boys is viewed as appropriate behaviour for them, through the process of socialisation, boys in this study may not feel ashamed of admitting that they often get into a lot of fights.

The reason why boys realise that they often get into trouble is that they have already perceived themselves as troublemakers either at home or in school through the treatment and interactions they are exposed to with their parents and teachers. Studies on teacher-expectancy and reports from parents often reveal that boys have more behavioural problems than girls (Levitin and Chananie, 1972; Schlosser and Algozzine, 1980; Serbin, O'Leary, Kent, and Tonick, 1973; Silberman, 1969). Quite often parents and teachers take precautions in dealing with boys, even though they may exhibit minor misbehaviour. Since human beings are actively interpreting and perceiving the feelings and behaviours of others towards them, through social interaction boys know how their parents and teachers think of them in terms of problem behaviour. Therefore, they readily acknowledge that they often get into trouble when we ask them about their behaviour.

On examining the relationship between self-esteem and anxiety research findings generally indicates a negative relationship, i.e., high levels of self-esteem are concomitant

with low levels of anxiety (Bledsoe, 1967; Lipsitt, 1958; Many and Many, 1975; Stanwyck, and Felker, 1971). The results of the present study, however, do not show this trend and, in contrast, reveal a positive relationship between self-esteem and anxiety. Since no research has been carried out to examine the relationship between these two variables with the "mentally-handicapped" population, it is difficult to compare the present results with previous findings. Therefore, it is conceivable that the present results differ from those conducted with the "normal" population. One plausible explanation for the positive relationship between self-esteem and anxiety in the study is that the high self-esteem subjects want to maintain their self-esteem and consequently become more anxious in every situation in order to prevent facing failure which may affect their self-esteem. In contrast, the low self-esteem subjects who have negative evaluations of themselves may perceive most situations as threatless. As a result, they may feel little anxiety even in a stressful situation and consequently score lower on the anxiety test. The above explanation, however, should be viewed as tentative and interpreted with caution because the "social desirability" variable (Crandall, Crandall, and Katkovsky, 1965; Edwards, 1957; Jones, 1976) may prevent the children from responding truthfully to the items of the anxiety scale.

C. Limitations of the Study

The present study was an initial research project designed to examine the effect of children's self-esteem on their interactions with teachers and the effect of teachers' evaluation of children's self-esteem upon their contacts with students in special classrooms. Since this was not an experimental study,

with strict control of variables, it is to be expected that several limitations will arise. Four major shortcomings of this investigation should be noted. The first limitation is related to the length of the observational period. Although it was originally designed to conduct observations throughout the academic year, it was impossible to carry out because of the transfer and promotion of some subject students at the end of the spring term. As a result, there was limitation in collecting data which might have provided more promising results.

Secondly, this study only consisted of twenty-nine children and the number of subjects per self-esteem group was not equal. Initially, it was planned to select eight children in each self-esteem group and for each group to consist of equal numbers of boys and girls, but the differences between children's self-esteem scores and teacher-evaluated scores only permitted the selection of twenty-nine subjects who met the criterion of selection. If more schools and classrooms were available, the number in each self-esteem group would be balanced. Fortunately, this problem was overcomed by non-parametric statistics.

The third shortcoming of the present study concerned the generalisability of the findings. As this study was not an experimental research project and it was conducted by one researcher in four classrooms, the possibility of contamination was considerable. The strength of the study was that it occurred in natural classroom settings, but the data might reflect bias from a number of factors that the investigator was unable to control. Since this project was carried out in two special schools and the subjects were ten- to twelve-year-old mentally-handicapped children, it did not seem prudent to generalise these findings to other types of handicapped children and other age groups until additional research was conducted.

In addition to these shortcomings, another constraint of the study was the lack of peer interaction data. This study only included the interaction data between teachers and children but omitted data regarding the child's interactions with his classmates. As the children's classmates might function as "significant others" for them in evaluating themselves through the process of social comparison (Dinner, 1976; Levine, 1983; Rogers, Smith, and Coleman, 1978; Suls and Mullen, 1982; Suls and Sanders, 1982), then a comparison between teacher-pupil interaction data and pupil-pupil interaction data and the relating of each set of data to children's self-esteem scores might have clarified who, the teacher or the classmate, had more influence on a child's developing self in schools.

D. Recommendations for Further Study

In light of the results and on the basis of the conclusions, there are a number of recommendations proposed in the following paragraphs for further studies on the self-esteem of mentally-handicapped children and classroom interactions in special schools. Since this study only recorded the interactions among four teachers and twenty-nine mentally-handicapped children in four classrooms at two special schools within a period of seven months, further research should be conducted with larger samples and expanded over a longer period of time. It would be interesting to investigate the "developing self" of mentally-handicapped children by examining the change of their self-esteem as they transferred from one class to another and interacted with different teachers and classmates. The longitudinal research method in which "the same group of subjects is studied, tested and observed repeatedly over an extended period of time"

(Thomas, 1980, p. 15) might clarify the nature of self-concept or self-esteem such as the process of change, the factors that affect change, and so forth.

In discussing the attitude-behaviour relations, Ajzen (1982) argued that "global attitudes towards an object (or personality traits) predict only the overall pattern of behaviour, they are of little value if we are interested in predicting a particular action with respect to the object. To predict a single behaviour we have to assess the person's attitude towards the behaviour in question" (p. 13). The investigator in this study only measured children's global self-esteem and yet observed teacher-pupil interactive behaviours in a learning situation. This might have caused the failure of this study to support the assumption that an individual's behaviour is guided and directed by his self-esteem. If the investigator had measured the children's academic self-esteem and then observed how they interacted with teachers in the learning situation, the results might have been different. Therefore in conducting a similar study, researchers would be advised to measure children's specific self-esteem and to observe them in a situation which is related to the specific self-esteem being measured.

Besides teachers, classmates in schools may also function as "significant others" for children to evaluate themselves through the process of social comparison (Dinner, 1976; Levine, 1983; Ruble, Boggiano, Feldman, and Loebel, 1980; Strang, Smith, and Rogers, 1978; Suls and Mullen, 1982). As this study failed to demonstrate that teacher-pupil interactions were related to a change of children's self-esteem, there is a need for more research to explore who is the "significant other" of a child in schools, the teacher or the classmate, and then observe their

interactions in different situations to determine how their interactions function as a variable that may affect a child's self-evaluation.

In addition to the "reactive" approach, the "spontaneous" approach is another method for studying people's self-concept (Bugental, 1964; Keller, Ford, and Meacham, 1978; Kuhn and McPartland, 1954; McGuire and McGuire, 1981, 1982; Montemayor and Eisen, 1977). In recent years many psychologists believed that "in order to understand or study a person's behaviour it is necessary to know how he construes his particular situation" (Pope and Keen, 1981, p. 27). This idea was proposed first of all in phenomenological psychology and later elaborated in Kelly's personal construct theory (Bannister, 1970, 1977; Bonarius, Holland, and Rosenberg, 1981; Cole, 1977; Fransella, 1981; Fransella and Bannister, 1978; Kelly, 1955; Pope and Keen, 1981). In studying the relationship between self-esteem and behaviour, the best way is to know how a child evaluates himself from his own point of view and then to examine his behaviour. By doing this, children's behaviour may be found to be highly related to their self-evaluation. Therefore, any further study of children's self-esteem should adopt this "spontaneous" approach which could yield more positive results.

One of the issues regarding self-concept is its change over time. In discussing group versus individual change in self-concept, Fitts (1981) warned that "one should not be content to collect data from a group of people, feed them into a computer, then report and interpret the group findings. It is more important to get one's hands on the data and see what is really there - what's happening to the individuals there" (p. 264). Based on this suggestion, further studies investigating the

change of children's self-concept should also focus on the individual subject within the sample. Having information about an individual's self-esteem may help teachers more effectively to build up a more positive self-image in each child. Also, single subject research (Hersen and Barlow, 1982; Kratochwill, 1978) is very useful in generating hypotheses, as well as demonstrating the effectiveness of certain intervention programme.

Another recommendation for further study is to examine teacher's self-concept. We know that teachers with different levels of self-concept may interact with their students differently and, through both verbal and non-verbal communication, they may affect their students' self-concept (Burns, 1982; Edeburn and Landry, 1975; Heinz, 1976; Kash and Borich, 1978; Thomas, 1980). One method of conducting this research is to measure both teachers' self-concept and children's self-concept and then observe how teachers with different levels of self-concept interact with their students. Re-measurements of children's self-concept should be carried out at several intervals during the research project to examine under what conditions children's self-concept are changed and how these changes relate to teachers' interactions.

Finally, a further study is advocated in which baseline data, acquired through observations, would be obtained of teachers' interactions with students possessing different levels of self-esteem. After the baseline data is gathered, the identities of the students with high or low self-esteem are made known to the teachers. Following this, observations would be made again to examine if there is change in teachers' behaviour as a result of teacher's awareness of the students' self-esteem.

E. Implications of the Study

Although this study fails to support the theoretical assumption that an individual's behaviour is guided and directed by one's self-concept or self-esteem (Mead, 1934; Rogers, 1951; Snygg and Combs, 1949) and the hypothesis that teacher-pupil interactions may affect children's self-concept (Battle, 1981; Del-Polito, 1980; Jersild, 1952; Yamamoto, 1972), some results are useful for both theoretical and educational implications.

Nowadays, many psychologists agree that "human behaviour is influenced by many factors" (Fox, Tobin, and Brody, 1979, p. 309). Instead of conceiving "traits (and other personality attributes) as psychological properties of people that function as causes of behaviour" (Ebbesen, 1981, p. 247), psychologists realise "the importance of contextual influences, and ... the interdependency of individuals and their environments" (Shapiro and Weber, 1981, p. vii). Besides self-esteem, other personal variables such as motive, attitude and interest also play important roles in affecting children's classroom behaviour. At the same time, we should consider the physical and perceived classroom situations as "social situations influenc(ing) the behaviour of individuals" (Snyder, 1981a, p. 309). The most important of all, however, is to investigate "the continuously ongoing person-situation interaction process" (Magnusson, 1981b, p. 31), a dynamic interaction model proposed by the interactionists (Christie, 1978; Endler and Magnusson, 1976b; Geis, 1978; Magnusson and Endler, 1977; Pervin and Lewis, 1978). This study makes us aware of the problems of studying the link between personality and behaviour and sensitizes us to consider various factors while investigating human behaviour.

The identification of no significant relationship between teacher-pupil interactions and children's self-esteem in this study also points out another difficulty in exploring human behaviour. During the past fifty years, psychology has been divided into diverse fields such as social, developmental, cognitive, clinical and personality. Most "psychologists allied with one designed field defend themselves from intrusion from those identified with another area" (Brehm, Kassin, and Gibbons, 1981, p. vii). As a result, many findings of previous psychological research were either contradictory or inconclusive. By realising that the boundaries between different areas of psychology are distinctly permeable and by recognising the benefit of cross-disciplinary research, many researchers in recent years from different areas of psychology are tending to integrate with one another, e.g., some social psychologists apply cognitive theory to explain human social behaviour (Feldman and Bush, 1983; Flavell and Ross, 1981; Forgas, 1981a; Higgins, Herman, and Zanna, 1981; Higgins, Ruble, and Hartup, 1983; Overton, 1983). From this integration, we may acquire a better knowledge of a person as "an active processor of information, organising and constructing experience into meaningful internal representations, and behaving not as an automaton but as a thoughtful, purposeful being" (Feather, 1982b, p. 3). Therefore, in studying how an individual behaves in a situation, we should also investigate the way he perceives the environment. In order to have a better understanding of human beings, we should not concentrate on only one explanation of human behaviour to the total neglect of others. As different areas of psychology are often inter-related, we should recognise the contributions of each area for widening our knowledge of human behaviour.

Although self-esteem in this study does not relate closely to children's classroom behaviour, we cannot miminise its importance in the learning situation. Nowadays, "most school curricula predominantly emphasise cognitive processes and devote less attention to the affective components of students' lives" (Gordon, 1981, p. 115). Bloom (1982), however, realises the importance of affective entry characteristics in school learning by stating that "affective characteristics are important in determining or influencing the students' achievement" (p. 104). This idea is also shared by Anderson (1981) as he writes "affective characteristics can serve as means to ends or as ends in themselves" (p. 9). Since most mentally-handicapped children experience more failure and frustration than the normal population and often have negative self-concepts (Balla and Zigler, 1979; Robinson and Robinson, 1976; Simpson and Meaney, 1979; Zigler and Balla, 1982), teachers should enhance their self-concepts through specially designed programmes or by providing them with realistic feedback (Battle, 1981; Bean and Clemes, 1978; Campbell, 1980; Canfield, 1976; Gallagher, 1979; Helm, 1980; Leonetti, 1980; Samuels, 1977). Once the mentally-handicapped child leaves school, he should have more confidence in encountering different social situations as a result of these positive procedures.

This study demonstrates that to some extent teachers' evaluation or impression of children affect their interactions with these children in the classroom. Although teachers' impression of a child appear to be difficult to change, yet teachers should be awared of the possible aversive effects of biased expectations of students. It is dangerous to form a negative impression of a child because, through both verbal and

non-verbal interactions, teachers may communicate their negative expectations and attitudes to the child which may, in turn, influence the child's self-evaluation. Especially, teachers of mentally-handicapped children should avoid forming negative or biased expectations of their students. Instead, they should discover the strengths of each child and help him to develop his potential (Kohl, 1979).

In conclusion, this study gives some insights into the self-esteem of mentally-handicapped children and the pattern of teacher-pupil interactions in special classrooms. Its findings can be used as the stimulus for further research in this area or related areas. The results of the study, it is hoped, may help teachers to realise some of the effects of teachers' expectations on their interactions with children and may make researchers understand the complexity of human behaviour. Finally, this research may clarify some issues of teacher expectations and personality-behaviour relation.

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Name: _____ Age: _____

Class: _____ Sex: _____

Read the twenty five statements below carefully.
Circle YES if the statement describes how you usually feel.
Circle NO if the statement does not describe how you usually feel.
Remember, there are NO RIGHT OR WRONG ANSWERS.

1	I often wish I were someone else	YES	NO
2	I find it very hard to talk in front of the class	YES	NO
3	There are lots of things about myself I'd change if I could	YES	NO
4	I can make up my mind without too much trouble	YES	NO
5	I get upset easily at home	YES	NO
6	I'm a lot of fun to be with	YES	NO
7	It takes me a long time to get used to anything new	YES	NO
8	I'm popular with kids my own age	YES	NO
9	My parents usually consider my feelings	YES	NO
10	I give in very easily	YES	NO
11	My parents expect too much of me	YES	NO
12	It's pretty tough to be me	YES	NO
13	Things are all mixed up in my life	YES	NO
14	Kids usually follow my ideas	YES	NO
15	I have a low opinion of myself	YES	NO
16	There are many times when I'd like to leave home	YES	NO
17	I often feel upset in school	YES	NO
18	I'm not as nice looking as most people	YES	NO
19	If I have something to say, I usually say it	YES	NO
20	My parents understand me	YES	NO
21	Most people are better liked than I am	YES	NO
22	I usually feel as if my parents are pushing me	YES	NO
23	I often get discouraged in school	YES	NO
24	Things usually don't bother me	YES	NO
25	I can't be depended on	YES	NO

Name: _____ Age: _____

Class: _____ Sex: _____

Here are a set of statements. Circle YES if the statement is generally like you, or circle NO if the statement is generally not like you. Remember, there are NO RIGHT OR WRONG ANSWERS.

1	I am a happy person	YES	NO
2	I am unpopular	YES	NO
3	I am well behaved in school	YES	NO
4	I am often sad	YES	NO
5	It is usually my fault when something goes wrong	YES	NO
6	I cause trouble to my family	YES	NO
7	I have good ideas	YES	NO
8	I give up easily	YES	NO
9	I do many bad things	YES	NO
10	I am good in school work	YES	NO
11	I behave badly at home	YES	NO
12	I am slow in finishing my school work	YES	NO
13	I am an important member of my class	YES	NO
14	I am nervous	YES	NO
15	I can give a good report in front of my class	YES	NO
16	In school I am a dreamer	YES	NO
17	My friends like my ideas	YES	NO
18	I often get into trouble	YES	NO
19	I worry a lot	YES	NO
20	My parents expect too much of me	YES	NO
21	I like being the way I am	YES	NO
22	I feel left out of things	YES	NO
23	I am often mean to other people	YES	NO
24	My classmates in school think I have good ideas	YES	NO
25	I am unhappy	YES	NO

26	I am dumb about most things	YES	NO
27	I am cheerful	YES	NO
28	I am good looking	YES	NO
29	I get into lots of fights	YES	NO
30	People pick on me	YES	NO
31	My family is disappointed in me	YES	NO
32	I have a pleasant face	YES	NO
33	When I try to make something, everything seems to go wrong	YES	NO
34	I am clumsy	YES	NO
35	I forget what I learn	YES	NO
36	I lose my temper easily	YES	NO
37	I am often afraid	YES	NO
38	I am always breaking or dropping things	YES	NO
39	I think bad thoughts	YES	NO

Name: _____ Age: _____

Class: _____ Sex: _____

Read the ten statements below carefully.

Circle YES if you think it is true about you.

Circle NO if you think it is not true about you.

Remember, there are NO RIGHT OR WRONG ANSWERS.

1	I get nervous when someone watches me work.	1 YES	NO
2	Others seem to do things easier than I can.	2 YES	NO
3	I feel alone even when there are people around me.	3 YES	NO
4	I get nervous when things do not go the right way for me.	4 YES	NO
5	I worry about what my parents will say to me.	5 YES	NO
6	I have trouble swallowing.	6 YES	NO
7	I worry about what is going to happen.	7 YES	NO
8	I worry when I go to bed at night.	8 YES	NO
9	I often do things I wish I had never done.	9 YES	NO
10	I often worry about what could happen to my parents.	10 YES	NO

Appendix 1d - The Nowicki-Strickland Locus of Control Scale for Children (Short Form)

Name: _____ Age: _____

Class: _____ Sex: _____

I am going to ask you some questions to see how you think about certain things. There are no right or wrong answers to these questions. Some children say "yes" and some say "no". When I ask the question, if you think your answer should be yes, or mostly yes, circle "YES." If you think the answer should be no, or mostly no, circle "NO."

1	Do you believe that most problems will solve themselves if you just don't fool with them?	1 YES	NO
2	Are some children just born lucky?	2 YES	NO
3	Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?	3 YES	NO
4	Do you feel that most of the time parents listen to what their children have to say?	4 YES	NO
5	Do you believe that wishing can make good things happen?	5 YES	NO
6	Do you feel that it's nearly impossible to change your parent's mind about anything?	6 YES	NO
7	Do you feel that when you do something wrong there's very little you can do to make it right?	7 YES	NO
8	Do you believe that most children are just born good at sports?	8 YES	NO
9	Are most of the other children your age stronger than you are?	9 YES	NO
10	Do you feel that one of the best ways to handle most problems is just not to think about them?	10 YES	NO
11	Do you feel that when a child your age decides to hit you, there's little you can do to stop him?	11 YES	NO
12	Have you felt that when people were mean to you it was usually for no reason at all?	12 YES	NO
13	Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?	13 YES	NO
14	Most of the time do you find it useless to try to get your own way at home?	14 YES	NO

15 Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters? 15 YES NO

16 Do you usually feel that you have little to say about what you get to eat at home? 16 YES NO

17 Do you feel that when someone doesn't like you there's little you can do about it? 17 YES NO

18 Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are? 18 YES NO

19 Are you the kind of person who believes that planning ahead makes things turn out better? 19 YES NO

20 Most of the time, do you feel that you have little to say about what your family decides to do? 20 YES NO

Appendix 1e - The Revised Short-Form of the Piers-Harris Children's Self-Concept Scale

Name: _____ Age: _____

Class: _____ Sex: _____

Here are a set of statements. Circle YES if the statement is generally like you, or circle NO if the statement is generally not like you. Remember, there are NO RIGHT OR WRONG ANSWERS.

1	I am a happy person	1 YES	NO
2	I am unpopular	2 YES	NO
3	I am well behaved in school	3 YES	NO
4	I am often sad	4 YES	NO
5	It is usually my fault when something goes wrong	5 YES	NO
6	I cause trouble to my family	6 YES	NO
7	I have good ideas	7 YES	NO
8	I give up easily	8 YES	NO
9	I do many bad things	9 YES	NO
10	I am good in school work	10 YES	NO
11	I behave badly at home	11 YES	NO
12	I am slow in finishing my school work	12 YES	NO
13	I am nervous	13 YES	NO
14	In school I am a dreamer	14 YES	NO
15	My friends like my ideas	15 YES	NO
16	I often get into trouble	16 YES	NO
17	I worry a lot	17 YES	NO
18	My parents expect too much of me	18 YES	NO
19	I like being the way I am	19 YES	NO
20	I feel left out of things	20 YES	NO
21	I am often mean to other people	21 YES	NO
22	My classmates in school think I have good ideas	22 YES	NO
23	I am unhappy	23 YES	NO
24	I am dumb about most things	24 YES	NO

GROUP READING TEST
Form A

D. Young

SCORE

NAME..... DATE .....

SCHOOL ..... CLASS.....

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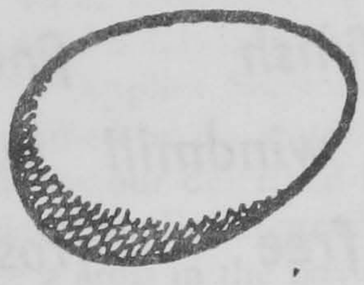

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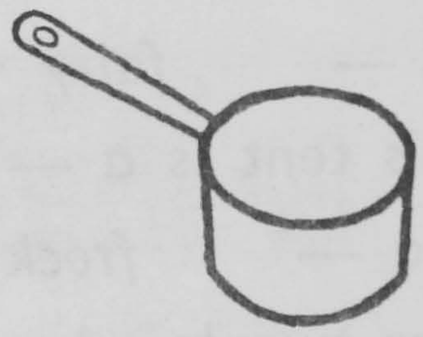

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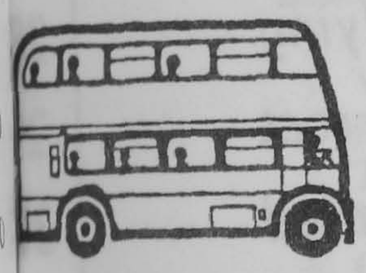

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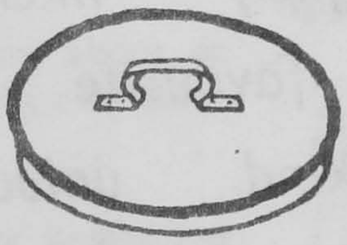

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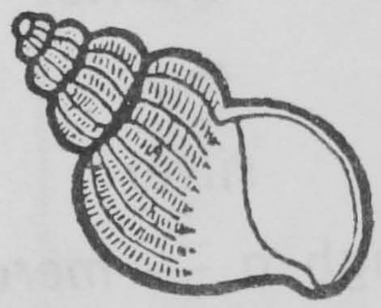

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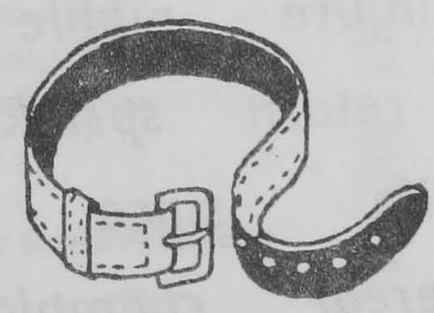

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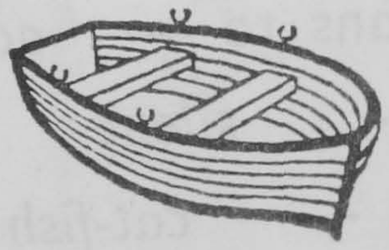

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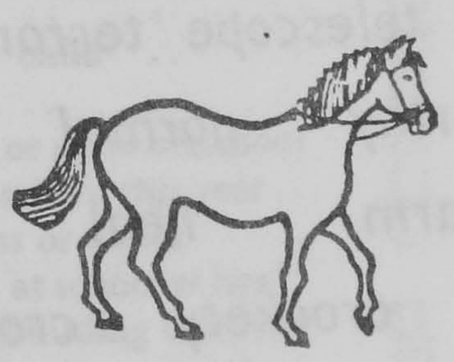

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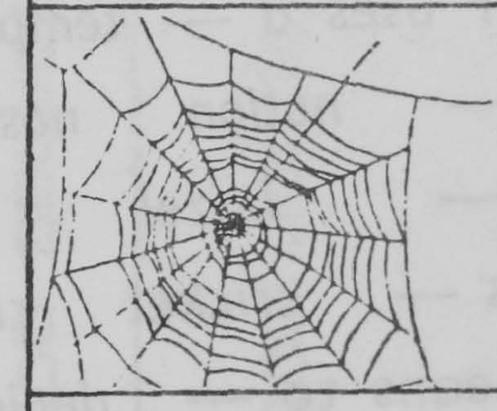

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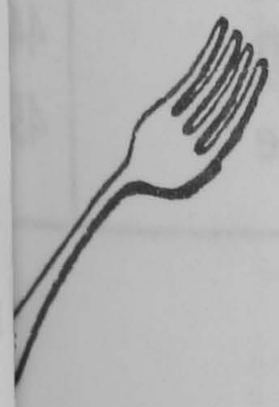

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1 A cat can get in a — *red ten six box run*
2 We read — *up books the is can*
3 Small means — *and come little see sing*

Name of the Child: _____ School: _____

Age of the Child: _____ Date of completion: _____

APPENDIX
CHILD SCALE B

TO BE COMPLETED BY TEACHERS

Below are a series of descriptions of behaviour often shown by children. After each statement are three columns: "Doesn't Apply", "Applies Somewhat", and "Certainly Applies". If the child definitely shows the behaviour described by the statement place a cross in the box under "Certainly Applies". If the child shows the behaviour described by the statement but to a lesser degree or less often place a cross in the box under "Applies Somewhat". If, as far as you are aware, the child does not show the behaviour place a cross in the box under "Doesn't Apply".

1. Please put ONE cross against EACH statement. Thank you.

Statement	Doesn't Apply	Applies Somewhat	Certainly Applies	FOR OFFICE USE ONLY
1. Very restless. Often running about or jumping up and down. Hardly ever still	☐	☐	☐	☐
2. Truants from school	☐	☐	☐	☐
3. Squirmy, fidgety child	☐	☐	☐	☐
4. Often destroys own or others' belongings	☐	☐	☐	☐
5. Frequently fights with other children ..	☐	☐	☐	☐
6. Not much liked by other children ..	☐	☐	☐	☐
7. Often worried, worries about many things	☐	☐	☐	☐
8. Tends to do things on his own—rather solitary	☐	☐	☐	☐
9. Irritable. Is quick to "fly off the handle"	☐	☐	☐	☐
10. Often appears miserable, unhappy, tearful or distressed	☐	☐	☐	☐
11. Has twitches, mannerisms or tics of the face or body	☐	☐	☐	☐
12. Frequently sucks thumb or finger ..	☐	☐	☐	☐
13. Frequently bites nails or fingers	☐	☐	☐	☐
14. Tends to be absent from school for trivial reasons	☐	☐	☐	☐
15. Is often disobedient	☐	☐	☐	☐
16. Has poor concentration or short attention span	☐	☐	☐	☐
17. Tends to be fearful or afraid of new things or new situations	☐	☐	☐	☐
18. Fussy or over-particular child	☐	☐	☐	☐
19. Often tells lies	☐	☐	☐	☐
20. Has stolen things on one or more occasions	☐	☐	☐	☐
21. Has wet or soiled self at school this year..	☐	☐	☐	☐
22. Often complains of pains or aches ..	☐	☐	☐	☐
23. Has had tears on arrival at school *or* has refused to come into the building this year	☐	☐	☐	☐
24. Has a stutter or stammer	☐	☐	☐	☐
25. Has other speech difficulty	☐	☐	☐	☐
26. Bullies other children	☐	☐	☐	☐

Are there any other problems of behaviour?

.....

.....

.....

Signature: Mr/Mrs/Miss.....

How well do you know this child? Very well ☐

Moderately well ☐ Not very well ☐

THANK YOU VERY MUCH FOR YOUR HELP

Appendix 2a - Calculation of the Kuder-Richardson Index using Formula 20

Item	npi	pi	qi	piqi
1	103	0.4402	0.5598	0.2464
2	114	0.4872	0.5128	0.2498
3	85	0.3632	0.6368	0.2313
4	150	0.6410	0.3590	0.2301
5	87	0.3718	0.6282	0.2336
6	185	0.7906	0.2094	0.1656
7	79	0.3376	0.6624	0.2236
8	174	0.7436	0.2564	0.1907
9	162	0.6923	0.3077	0.2130
10	110	0.4701	0.5299	0.2491
11	85	0.3632	0.6368	0.2313
12	108	0.4615	0.5385	0.2485
13	111	0.4744	0.5256	0.2493
14	162	0.6923	0.3077	0.2130
15	103	0.4402	0.5598	0.2464
16	130	0.5556	0.4444	0.2469
17	89	0.3803	0.6197	0.2357
18	100	0.4274	0.5726	0.2447
19	180	0.7692	0.2308	0.1775
20	197	0.8419	0.1581	0.1331
21	120	0.5128	0.4872	0.2498
22	133	0.5684	0.4316	0.2453
23	102	0.4359	0.5641	0.2459
24	112	0.4786	0.5214	0.2495
25	92	0.3932	0.6068	0.2386
Sum	3073			5.6887

$$s_t^2 = \frac{\Sigma X^2}{N} - \left(\frac{\Sigma X}{N}\right)^2 = \frac{42652}{234} - \left(\frac{3073}{234}\right)^2 = 9.8115$$

$$r_{tt} = \frac{k}{k-1}\left(\frac{s_t^2 - piqi}{s_t^2}\right) = \frac{25}{24}\left(\frac{9.8115 - 5.6887}{9.8115}\right)$$

$$= 0.4377$$

Appendix 2b - Calculation of the split-half reliability using the Spearman-Brown formula

The summary data are:

	ΣX	X^2	$\bar{x}$	s	$\Sigma X_o X_e$
Odds	1305	8355	5.5769	2.1455	9570
Evens	1676	12680	7.1624	1.6995	

$$r_{oe} = \frac{\Sigma X_o X_e/N - (\bar{x}_o)(\bar{x}_e)}{(s_o)(s_e)}$$

$$= \frac{9570/234 - 5.5769 \times 7.1624}{2.1455 \times 1.6995}$$

$$= 0.2615$$

$$r_{tt} = \frac{2r_{oe}}{1 + r_{oe}}$$

$$= \frac{2 \times 0.2615}{1 + 0.2615}$$

$$= 0.4146$$

Appendix 2c - Calculation of the test-retest coefficient

The summary statistics are:

Measure	ΣX	X^2	$\bar{x}$	s	ΣXY
S.E.I. (1st test)A1	3005	41733	13.1223	3.1696	43535
S.E.I. (retest)A2	3203	48243	13.9869	3.8775	

$$r_{tt} = r(A1)(A2)$$

$$= \frac{\Sigma(X_{A1})(X_{A2})/N - (\bar{x}_{A1})(\bar{x}_{A2})}{(s_{A1})(s_{A2})}$$

$$= \frac{43535/229 - 13.1223 \times 13.9869}{3.1696 \times 3.8775}$$

$$= 0.5345$$

Appendix 2d - Calculation of the indices of item difficulty, item discrimination, and item validity (Item 1 of the Piers-Harris Scale in the retest session)

A Item Difficulty Index (P)

$$P = \frac{R_U + R_L}{N} = \frac{17 + 1}{120} = 0.15$$

B Item Discrimination Index (D)

$$D = \frac{R_U - R_L}{\frac{1}{2}T} = \frac{17 - 1}{\frac{1}{2} \times 120} = 0.27$$

C Item Validity Index (V) - The point-biserial r

$$M_1 = \frac{422}{18} = 23.444444$$

$$M_2 = \frac{1689 - 422}{102} = 12.421569$$

$\sigma = 9.6221638$

$N_1 = 18$; $N_2 = 102$

$N = 120$

$$p = \frac{18}{120} = 0.15$$

$q = 1 - p = 0.85$

$$r\ pbis = \frac{M_1 - M_2}{\sigma} \times \sqrt{pq}$$

$$= \frac{23.444444 - 12.421569}{9.6221638} \times \sqrt{0.15 \times 0.85}$$

$$= 0.4091$$

Appendix 2e - Calculation of the Scott's coefficient (π)

Behavioural category	Observer A	Observer B	% Total scores (Pei)	Agreements	Disagreements
Subject - I	174	170	0.7818	170	4
Subject - G	34	35	0.1568	34	1
Nonsubj - I	8	12	0.0455	8	4
Nonsubj - G	4	3	0.0159	3	1
Sums	220	220	1.0000	215	10

$$Pei = \Sigma Pei^2 = (0.7818)^2 + (0.1568)^2 + (0.0455)^2 + (0.0159)^2$$
$$= 0.6381$$

$$Poi = N\ agree/(N\ agree + N\ disagree)$$
$$= 215/(215 + 10)$$
$$= 0.9556$$

$$\pi = \frac{Poi - Pei}{1 - Pei}$$

$$= \frac{0.9556 - 0.6381}{1 - 0.6381}$$

$$= 0.8773$$

Appendix 2f - Calculation of the Kappa

	Behavioural category	Subject-I	Subject-G	Nonsubj-I	Nonsubj-G	Proportion of total for observer 1 (P_1)
Observer 2	Subject-I	170	0	4	0	174/220 = 0.7909
	Subject-G	0	34	0	0	34/220 = 0.1545
	Nonsubj-I	0	0	8	0	8/220 = 0.0364
	Nonsubj-G	0	1	0	3	4/220 = 0.0182
Proportion of total for observer 2 (P_2)		170	35	12	3	
		0.7727	0.1591	0.0545	0.0136	

P_o = sum of diagonal entries/total of all entries

$$= \frac{170 + 34 + 8 + 3}{220} = 0.9773$$

$P_c = \Sigma(P_1 \times P_2)$

$= (0.7727 \times 0,7909) + (0.1591 \times 0.1545) + (0.0545 \times 0.0364) + (0.0136 \times 0.0182)$

$= 0.6379$

$$\text{Kappa} = \frac{P_o - P_c}{1 - P_c} = \frac{0.9773 - 0.6379}{1 - 0.6379}$$

$= 0.9373$

Appendix 2g - Calculation of the Mann-Whitney U-value

HH Group			HL Group		
Subject	m.f.	R_1	Subject	m.f.	R_2
1	0.0020	1	7	0.0117	4.5
2	0.0156	6	8	0.0086	3
3	0.0262	13	9	0.0488	14
4	0.0175	9	10	0.0117	4.5
5	0.0081	2	11	0.0208	11
6	0.0162	7.5	12	0.0162	7.5
			13	0.0185	10
			14	0.0229	12
Sum		38.5			66.5

$$U_1 = n_1 n_2 + \frac{n_1(n_1 + 1)}{2} - R_1$$

$$= 6 \times 8 + \frac{6(6 + 1)}{2} - 38.5$$

$$= 30.5$$

$$U_2 = n_1 n_2 + \frac{n_2(n_2 + 1)}{2} - R_2$$

$$= 6 \times 8 + \frac{8(8 + 1)}{2} - 66.5$$

$$= 17.5$$

U-value = 17.5 p = 0.245

Appendix 2h - Calculation of the χr^2 value (The Friedman Two-way Analysis of Variance)

	Self-esteem score			Ranking		
Subject	1st	2nd	3rd	R_1	R_2	R_3
1	21	14	16	3	1	2
2	23	13	13	3	1.5	1.5
3	18	12	20	1	3	2
4	19	19	14	2.5	2.5	1
5	28	26	21	3	2	1
6	26	24	23	3	2	1
7	13	17	13	1.5	3	1.5
8	16	16	17	1.5	1.5	3
9	19	17	13	3	2	1
10	18	20	16	2	3	1
11	35	15	20	3	1	2
12	22	22	17	2.5	2.5	1
13	20	19	14	3	2	1
14	18	18	16	2.5	2.5	1
15	4	7	6	1	3	2
16	6	5	1	3	2	1
17	5	4	3	3	2	1
18	2	0	1	3	1	2
19	12	9	8	3	2	1
20	4	4	4	2	2	2
21	4	5	1	2	3	1
22	4	6	7	1	2	3
23	4	8	7	1	3	2
24	10	5	3	3	2	1
25	8	9	8	1.5	3	1.5
26	5	11	7	1	3	2
27	8	17	17	1	2.5	2.5
28	8	11	5	2	3	1
29	4	6	3	2	3	1
R_j				64	66	44

$$\chi r^2 = \frac{12}{Nk(k+1)} \sum (R_j)^2 - 3N(k+1)$$

$$= \frac{12}{29 \times 3(3+1)} (64^2 + 66^2 + 44^2) - 3 \times 29(3+1)$$

$$= 10.2069 \qquad p<0.01 \ (df = 2)$$

Appendix 2i - Calculation of the values of T and z (The Wilcoxon Signed-Ranks Test)

Subject	1st Rating	2nd Rating	Difference (d)	Rank of d	Rank with less frequent sign
1	21	14	-7	21	21
2	23	13	-10	23	23
3	18	22	4	17	
4	19	19	0		
5	28	26	-2	-9	9
6	26	24	-2	-9	9
7	13	17	4	17	
8	16	16	0		
9	19	17	-2	-9	9
10	18	20	2	9	
11	35	15	-20	-24	24
12	22	22	0		
13	20	19	-1	-3	3
14	18	18	0		
15	4	7	3	14	
16	6	5	-1	-3	3
17	5	4	-1	-3	3
18	2	0	-2	-9	9
19	12	9	-3	-14	14
20	4	4	0		
21	4	5	1	3	
22	4	6	2	9	
23	4	8	4	17	
24	10	5	-5	-19	19
25	8	9	1	3	
26	5	11	6	20	
27	8	17	9	22	
28	8	11	3	14	
29	4	6	2	9	

$T_+ = 154$

$T_- = 146$

T-value = 146

$$z = \frac{T - \frac{N(N+1)}{4}}{\sqrt{\frac{N(N+1)(2N+1)}{24}}}$$

$$= \frac{146 - \frac{24 \times 25}{4}}{\sqrt{\frac{24 \times 25 \times 49}{24}}}$$

$$= -0.1143$$

$p = 2(0.4562)$

$= 0.9124$

Appendix 2j - Calculation of the H-value (The Kruskal-Wallis One-way Analysis of Variance)

HH Group		HL Group		LL Group		LH Group	
m.f.	R_1	m.f.	R_2	m.f.	R_3	m.f.	R_4
0.4922	14	0.5840	21	0.5508	18	0.6167	24
0.5918	22	0.5474	16	0.7244	29	0.5672	20
0.6109	23	0.7109	28	0.6208	25	0.5000	15
0.2625	1	0.6348	26	0.4745	10	0.7012	27
0.4839	11	0.4401	6	0.4351	4	0.4375	5
0.5579	19	0.4840	12	0.4335	3	0.4888	13
		0.4653	8	0.4700	9	0.4637	7
		0.5500	17			0.4040	2
ΣR	90		134		98		113

$$H = \frac{12}{N(N+1)} \sum \frac{R_j^2}{n_j} - 3(N+1)$$

$$= \frac{12}{29 \times 30} \left(\frac{90^2}{6} + \frac{134^2}{8} + \frac{98^2}{7} + \frac{113^2}{8} \right) - 3(29+1)$$

$$= 0.5190$$

Appendix 3

School: ______________________ Name: ______________________

Class: ______________________ Date: ______________________

Interaction Record Sheet

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

A. <u>Activity (P)</u>

1. On Task: (1) Subject - I
   (2) Subject - G
   (3) Nonsubj - I
   (4) Nonsubj - G

2. Off Task: (1) Routine work
   (2) Distracted
   (3) Disturbing
   (4) Playing - I
   (5) Playing - G
   (6) Talking

B. <u>Initiated Contact (P)</u>

1. Instructional: (1) Ask Q
   (2) Ans Q
   (3) Give S/In
   (4) Wait C/I

2. Noninstructional: (1) Ask Q
   (2) Rou-W
   (3) Give S/In

C. <u>Reaction (T)</u>

1. Instructional:-
   a. +ve FB: (1) Ans P's Q/S/In
   (2) Ans + Acpt
   (3) An + Ac + Pr
   (4) Ans + Cort
   b. -ve FB: (1) Ignore Q/A/S/C
   (2) Reject Q/A/S/C
   (3) Reject + Crit

2. Noninstructional:-
   a. +ve FB: (1) Ans P's Q/S/In
   (2) Give permission
   b. -ve FB: (1) Reject
   (2) No reaction

D. <u>Initiated Contact (T)</u>

1. Instructional: (1) Ask Q
   (2) G-Inst

2. Noninstructional: (1) Ask Q
   (2) G-Inst

3. Discipline

E. <u>Reaction (P)</u>

1. Instructional:-
   a. +ve FB: (1) Ans T's Q
   (2) Follow Inst
   b. -ve FB: No response

2. Noninstructional:-
   a. +ve FB: (1) Ans T's Q
   (2) Follow Inst
   b. -ve FB: No response

3. Discipline:-
   (1) Show response
   (2) No response

Remarks:

Appendix 4a - Mean frequencies of occurrence for each behavioural category shown by the four self-esteem groups

Variable		HH = 6	HL = 8	LL = 7	LH = 8
On Task:	(1) Subject - I	0.4999	0.5521	0.5299	0.5226
	(2) Subject - G	0.1598	0.1676	0.2239	0.1734
	(3) Nonsubj - I	0.0659	0.0541	0.0560	0.0594
	(4) Nonsubj - G	0.0219	0.0121	0.0189	0.0157
	Total	0.7474	0.7858	0.8288	0.7711
Off Task:	(1) Routine work	0.0063	0.0082	0.0035	0.0049
	(2) Distracted	0.1931	0.1471	0.1220	0.1757
	(3) Disturbing	0.0080	0.0093	0.0053	0.0078
	(4) Playing - I	0.0162	0.0102	0.0070	0.0057
	(5) Playing - G	0.0068	0.0060	0.0068	0.0084
	(6) Talking	0.0222	0.0334	0.0268	0.0264
	Total	0.2527	0.2142	0.1721	0.2289
<u>Initiated Contact (P)</u>					
Instructional:	(1) Ask Q	0.0143	0.0199	0.0214	0.0137
	(2) Ans Q	0.0122	0.0191	0.0165	0.0111
	(3) Give S/In	0.0132	0.0139	0.0138	0.0149
	(4) Wait C/I	0.0785	0.0893	0.1190	0.0863
	Total	0.1181	0.1423	0.1707	0.1260
Noninstruc-tional	(1) Ask Q	0.0052	0.0075	0.0057	0.0031
	(2) Rou-W	0.0034	0.0036	0.0030	0.0045
	(3) Give S/In	0.0052	0.0040	0.0078	0.0036
	Total	0.0138	0.0151	0.0166	0.0112
Grand Total		0.1320	0.1574	0.1873	0.1371
<u>Reaction (P)</u>					
Instructional(+ve FB)					
(1) Ans T's Q		0.0256	0.0127	0.0127	0.0152
(2) Follow Inst		0.0234	0.0168	0.0147	0.0192
Total		0.0490	0.0295	0.0273	0.0344
Noninstructional(+ve FB)					
(1) Ans T's Q		0.0040	0.0030	0.0022	0.0021
(2) Follow Inst		0.0062	0.0090	0.0066	0.0062
Total		0.0101	0.0119	0.0088	0.0083
Discipline(+ve FB)		0.0037	0.0055	0.0063	0.0047
+ve FB Total		0.0629	0.0469	0.0424	0.0473
Instructional(-ve FB)		0.0013	0.0000	0.0010	0.0008
Noninstructional(-ve FB)		0.0019	0.0003	0.0000	0.0000
Discipline(-ve FB)		0.0028	0.0020	0.0010	0.0011
-ve FB Total		0.0060	0.0023	0.0020	0.0019
Grand Total		0.0688	0.0492	0.0444	0.0493

Appendix 4b - Mean frequencies of teachers' classroom interactions with four self-esteem groups in each behavioural category

Variable		HH = 6	LH = 8	LL = 7	HL = 8
Initiated Contact (T)					
Instructional:	(1) Ask Q	0.0272	0.0163	0.0140	0.0138
	(2) G-Inst	0.0392	0.0464	0.0253	0.0286
	Total	0.0664	0.0627	0.0393	0.0424
Noninstructional	:(1) Ask Q	0.0053	0.0021	0.0019	0.0027
	(2) G-Inst	0.0088	0.0075	0.0089	0.0123
	Total	0.0142	0.0096	0.0108	0.0150
Discipline		0.0074	0.0074	0.0083	0.0085
Grand Total		0.0879	0.0796	0.0584	0.0659
Reaction (T)					
Instructional(+ve FB)					
(1) Ans P's Q/S/In		0.0213	0.0239	0.0349	0.0355
(2) Ans + Acpt		0.0018	0.0015	0.0037	0.0021
(3) An + Ac + Pr		0.0025	0.0011	0.0013	0.0016
(4) Ans + Cort		0.0100	0.0094	0.0175	0.0132
Total		0.0356	0.0359	0.0574	0.0523
Nonistructional(+ve FB)					
(1) Ans P's Q/S/In		0.0072	0.0045	0.0057	0.0074
(2) Give permission		0.0029	0.0040	0.0019	0.0024
Total		0.0101	0.0084	0.0076	0.0098
+ve FB Total		0.0457	0.0443	0.0651	0.0621
Instructional(-ve FB)					
(1) Ignore Q/A/S/C		0.0007	0.0011	0.0022	0.0005
(2) Reject Q/A/S/C		0.0000	0.0003	0.0011	0.0000
(3) Reject + Crit		0.0000	0.0000	0.0000	0.0000
Total		0.0007	0.0014	0.0033	0.0005
Noninstructional(-ve FB)					
(1) Reject		0.0000	0.0000	0.0010	0.0003
(2) No reaction		0.0007	0.0003	0.0019	0.0003
Total		0.0007	0.0003	0.0029	0.0005
-ve FB Total		0.0014	0.0016	0.0061	0.0010
Grand Total		0.0470	0.0459	0.0712	0.0631

Appendix 5 - Children's self-rating self-esteem scores and teacher-evaluated self-esteem scores in three testing sessions

Subject No.	Self-rating SE score			Teacher-evaluated SE score		
	1st	2nd	3rd	1st	2nd	3rd
1	21	14	16	18	18	22
2	23	13	13	19	20	16
3	18	22	20	20	11	21
4	19	19	14	27	30	17
5	28	26	21	16	7	4
6	26	24	23	16	6	11
7	13	17	13	6	1	4
8	16	16	17	7	4	10
9	19	17	13	5	12	7
10	18	20	16	4	10	3
11	35	15	20	1	10	7
12	22	22	17	3	5	4
13	20	19	14	5	4	7
14	18	18	16	7	3	4
15	4	7	6	1	1	2
16	6	5	1	9	8	6
17	5	4	3	2	5	5
18	2	0	1	3	4	1
19	12	9	8	1	2	1
20	4	4	4	6	3	4
21	4	5	1	3	1	1
22	4	6	7	20	17	18
23	4	8	7	18	10	7
24	10	5	3	14	11	7
25	8	9	8	16	18	14
26	5	11	7	13	6	3
27	8	17	17	14	18	17
28	8	11	5	17	12	20
29	4	6	3	15	9	10

Appendix 6a - Descriptive data of children in the high self-esteem group and their scores on different tests (S.R.S.E. = self-rating self-esteem score; T.E.S.E. = teacher-evaluated self-esteem score)

Subject No.	Age	Sex	S.R.S.E.	T.E.S.E.	Anxiety Scale	Reading Test	Behaviour Scale
132	10	G	35	1	8	26	5
115	10	B	28	27	10	9	18
118	12	G	28	16	4	35	9
182	11	G	27	3	4	21	2
50	12	B	26	21	6	18	13
71	10	G	26	2	7	15	4
151	11	B	26	16	6	25	10
25	10	B	25	1	10	4	2
175	10	B	25	4	10	16	14
212	10	B	25	9	1	14	4
77	10	G	24	0	6	34	1
240	12	B	24	5	6	12	8
24	10	B	23	0	8	17	2
57	10	B	23	19	9	17	6
98	11	B	23	14	7	8	7
227	11	G	23	7	7	14	12
138	12	B	22	29	7	18	20
158	11	B	22	3	5	19	6
188	10	G	22	10	5	25	7
17	11	B	21	5	10	5	6
56	11	B	21	18	8	12	24
101	11	B	21	8	8	7	7
6	10	G	20	4	8	17	1
34	12	G	20	17	5	19	28
86	12	B	20	7	5	24	15
97	11	B	20	10	9	15	5
121	11	G	20	5	5	30	0
140	12	B	20	16	6	22	5
250	10	B	20	13	5	16	5
11	12	B	19	13	6	20	24
42	11	G	19	5	8	16	3
73	10	G	19	16	5	12	14
93	11	B	19	10	5	9	4
157	11	B	19	3	7	36	0
174	10	B	19	27	7	15	10
185	10	G	19	9	10	20	4
217	10	B	19	8	5	10	7
7	10	G	18	3	8	17	5
27	10	B	18	3	9	15	16
51	12	B	18	20	4	20	22
54	11	B	18	4	6	32	3
72	10	G	18	9	5	25	5
102	10	B	18	5	6	19	3
122	11	G	18	19	7	25	9
142	12	B	18	7	4	28	0
155	11	B	18	29	5	11	15
229	11	G	18	6	7	27	18
243	11	B	18	0	6	21	1
245	11	B	18	2	7	36	4

249	10	B	18	16	3	10	11
18	11	B	17	7	10	8	6
19	11	B	17	8	10	14	14
22	11	B	17	7	5	2	7
31	10	B	17	4	10	9	6
33	10	B	17	1	10	14	5
36	12	G	17	7	3	28	6
43	11	G	17	15	3	10	7
152	11	B	17	7	5	22	0
177	10	B	17	10	7	9	8
183	11	G	17	15	1	20	5
215	10	B	17	2	3	16	16
222	10	B	17	21	4	11	23
231	11	G	17	10	7	16	18
232	10	G	17	2	4	20	1
239	12	B	17	0	6	16	3
246	11	B	17	7	5	5	15
62	10	B	16	7	3	18	8
88	11	B	16	19	5	10	9
113	10	B	16	22	2	15	30
119	12	G	16	8	5	19	5
196	12	B	16	17	6	9	13
235	12	B	16	0	5	16	0
247	10	B	16	22	5	14	11
29	10	B	15	25	3	11	18
40	11	G	15	2	6	20	7
114	10	B	15	13	6	6	13
200	12	B	15	3	2	18	15
233	10	G	15	17	4	15	4
236	12	B	15	2	7	19	2
238	12	B	15	6	5	13	4

ΣX	1555	790	482	1361	703
$\bar{x}$	19.44	9.88	6.03	17.01	8.79
ΣX^2	31359	12504	3298	27627	10025
σ	3.76	7.67	2.22	7.48	6.93

Appendix 6b - Descriptive data of children in the low self-esteem group and their scores on different tests (S.R.S.E. = self-rating self-esteem score; T.E.S.E. = teacher-evaluated self-esteem score)

Subject No.	Age	Sex	S.R.S.E.	T.E.S.E.	Anxiety Scale	Reading Test	Behaviour Scale
9	12	B	9	8	1	15	2
184	11	G	9	3	2	32	0
186	10	G	9	0	1	18	0
218	10	B	9	12	5	7	15
230	11	G	9	1	4	21	4
52	12	B	8	11	3	33	7
55	11	B	8	16	2	18	11
61	10	B	8	14	2	10	18
64	12	G	8	3	7	41	2
67	11	G	8	14	3	27	2
85	12	B	8	13	6	14	5
90	11	B	8	2	2	21	2
143	12	B	8	17	5	21	7
156	11	B	8	17	4	17	12
162	11	B	8	14	2	15	16
203	11	B	8	9	5	25	12
213	10	B	8	10	1	12	4
242	12	B	8	6	10	16	7
5	10	G	7	6	8	33	0
12	12	B	7	5	5	33	0
23	10	B	7	6	0	15	0
47	10	G	7	10	4	19	9
69	11	G	7	0	7	25	3
75	10	G	7	28	3	7	32
78	10	G	7	15	7	13	11
149	11	B	7	9	2	19	9
187	10	G	7	11	6	33	1
191	10	G	7	2	4	19	4
202	11	B	7	2	2	25	2
206	11	B	7	0	4	24	1
221	10	B	7	14	3	16	18
237	12	B	7	4	4	18	5
10	12	B	6	4	2	23	0
38	12	G	6	9	2	17	9
65	12	G	6	6	3	17	4
79	10	G	6	27	2	20	26
91	11	B	6	12	1	18	5
189	10	G	6	10	2	34	16
195	12	B	6	8	3	22	1
209	11	B	6	9	6	23	14
4	10	G	5	2	6	23	0
37	12	G	5	19	1	25	18
39	11	G	5	2	2	33	2
60	10	B	5	23	3	18	30
63	12	G	5	25	1	18	15
82	12	B	5	7	0	33	3
95	11	B	5	12	3	21	12
103	10	B	5	10	5	22	2
109	10	B	5	18	1	13	9

144	12	B	5	2	1	16	3
145	11	B	5	5	1	18	4
161	11	B	5	13	4	8	7
181	12	G	5	12	2	25	2
14	12	B	4	9	2	36	3
28	10	B	4	8	1	19	9
48	10	G	4	1	5	17	3
49	10	G	4	20	1	13	16
53	12	B	4	18	2	15	16
120	12	G	4	6	3	26	5
123	11	G	4	3	4	16	2
136	10	G	4	5	1	5	3
150	11	B	4	15	2	28	8
192	12	B	4	8	2	31	5
214	10	B	4	4	1	17	1
94	11	B	3	4	3	17	2
204	11	B	3	1	0	37	2
211	11	B	3	0	1	18	1
220	10	B	3	1	1	37	14
13	12	B	2	4	1	25	0
16	11	B	2	23	5	15	8
30	10	B	2	8	0	16	10
32	10	B	2	2	1	16	6
81	12	B	2	3	3	33	5
147	11	B	2	9	2	17	16
160	11	B	2	3	1	18	1
198	12	B	2	10	4	26	3
180	12	G	1	14	4	18	6
190	10	G	1	1	3	21	6
193	12	B	0	3	2	29	0
		ΣX	434	700	230	1675	557
		$\bar{x}$	5.49	8.86	2.91	21.20	7.05
		ΣX^2	2782	9802	992	40173	7669
		σ	2.24	6.75	2.02	7.68	6.88

Appendix 7a - Descriptive data of children in the high teacher-evaluated group and their scores on different tests (S.R.S.E. = self-rating self-esteem score; T.E.S.E.=teacher-evaluated self-esteem score)

Subject No.	Age	Sex	S.R.S.E.	T.E.S.E.	Anxiety Scale	Reading Test	Behaviour Scale
138	12	B	22	29	7	18	20
154	11	B	14	29	8	4	24
155	11	B	18	29	5	11	15
75	10	G	7	28	3	7	32
79	10	G	6	27	2	20	26
115	10	B	28	27	10	9	18
174	10	B	19	27	7	15	10
111	10	B	12	26	5	32	20
29	10	B	15	25	3	11	18
63	12	G	5	25	1	18	15
80	10	G	11	25	6	24	22
1	12	G	10	23	4	34	11
16	11	B	2	23	5	15	8
59	10	B	11	23	2	6	20
60	10	B	5	23	3	18	30
108	10	B	10	22	4	13	17
110	10	B	14	22	9	7	16
113	10	B	16	22	2	15	30
201	12	B	11	22	5	20	0
247	10	B	16	22	5	14	11
50	12	B	26	21	6	18	13
222	10	B	17	21	4	11	23
49	10	G	4	20	1	13	16
51	12	B	18	20	4	20	22
89	11	B	13	20	4	16	23
37	12	G	5	19	1	25	18
57	10	B	23	19	9	17	6
76	10	G	11	19	5	12	21
88	11	B	16	19	5	10	9
122	11	G	18	19	7	25	9
15	12	B	14	18	1	21	6
53	12	B	4	18	2	15	16
56	11	B	21	18	8	12	24
109	10	B	5	18	1	13	9
194	12	B	14	18	6	30	10
199	12	B	11	18	3	24	9
34	12	G	20	17	5	19	28
58	10	B	11	17	4	10	26
143	12	B	8	17	5	21	7
156	11	B	8	17	4	17	12
196	12	B	16	17	6	9	13
233	10	G	15	17	4	15	4
3	11	G	14	16	2	0	8
35	12	G	12	16	5	22	15
55	11	B	8	16	2	18	11
73	10	G	19	16	5	12	14
106	10	B	11	16	6	14	13
112	10	B	14	16	1	13	19
118	12	G	28	16	4	35	9
140	12	B	20	16	6	22	5

151	11	B	26	16	6	25	10
249	10	B	18	16	3	10	11
43	11	G	17	15	3	10	7
66	11	G	12	15	4	16	13
78	10	G	7	15	7	13	11
92	11	B	12	15	6	21	11
141	12	B	10	15	5	12	18
150	11	B	4	15	2	28	8
183	11	G	17	15	1	20	5
197	12	B	11	15	2	15	15
41	11	G	10	14	5	22	4
61	10	B	8	14	2	10	18
67	11	G	8	14	3	27	2
83	12	B	14	14	2	31	10
98	11	B	23	14	7	8	7
105	10	B	12	14	6	18	12
162	11	B	8	14	2	15	16
179	12	G	10	14	6	28	3
180	12	G	1	14	4	18	6
221	10	B	7	14	3	16	18
11	12	B	19	13	6	20	24
85	12	B	8	13	6	14	5
114	10	B	15	13	6	6	13
116	10	B	10	13	3	14	16
161	11	B	5	13	4	8	7
207	11	B	12	13	1	34	11
250	10	B	20	13	5	16	5

Appendix 7b - Descriptive data of children in the low teacher-evaluated group and their scores on different tests (S.R.S.E. = self-rating self-esteem score; T.E.S.E. = teacher-evaluated self-esteem score)

Subject No.	Age	Sex	S.R.S.E.	T.E.S.E.	Anxiety Scale	Reading Test	Behaviour Scale
12	12	B	7	5	5	33	0
17	11	B	21	5	10	5	6
42	11	G	19	5	8	16	3
102	10	B	18	5	6	19	3
121	11	G	20	5	5	30	0
131	10	G	11	5	4	21	2
136	10	G	4	5	1	5	3
145	11	B	5	5	1	18	4
224	12	G	11	5	6	12	4
240	12	B	24	5	6	12	8
6	10	G	20	4	8	17	1
10	12	B	6	4	2	23	0
13	12	B	2	4	1	25	0
20	11	B	14	4	7	3	12
31	10	B	17	4	10	9	6
54	11	B	18	4	6	32	3
94	11	B	3	4	3	17	2
117	12	G	12	4	3	29	5
128	11	G	13	4	6	30	0
175	10	B	25	4	10	16	14
214	10	B	4	4	1	17	1
228	11	G	10	4	6	20	4
237	12	B	7	4	4	18	5
7	10	G	18	3	8	17	5
21	11	B	12	3	5	13	13
27	10	B	18	3	9	15	16
64	12	G	8	3	7	41	2
81	12	B	2	3	3	33	5
123	11	G	4	3	4	16	2
157	11	B	19	3	7	36	0
158	11	B	22	3	5	19	6
160	11	B	2	3	1	18	1
182	11	G	27	3	4	21	2
184	11	G	9	3	2	32	0
193	12	B	0	3	2	29	0
200	12	B	15	3	2	18	15
248	10	B	12	3	5	21	5
4	10	G	5	2	6	23	0
32	10	B	2	2	1	16	6
39	11	G	5	2	2	33	2
40	11	G	15	2	6	20	7
71	10	G	26	2	7	15	4
90	11	B	8	2	2	21	2
135	10	G	13	2	7	15	1
144	12	B	5	2	1	16	3
148	11	B	12	2	4	24	2
191	10	G	7	2	4	19	4
202	11	B	7	2	2	25	2
215	10	B	17	2	3	16	16

225	11	G	12	2	8	6	4
232	10	G	17	2	4	20	1
236	12	B	15	2	7	19	2
245	11	B	18	2	7	36	4
25	10	B	25	1	10	4	2
33	10	B	17	1	10	14	5
48	10	G	4	1	5	17	3
132	10	G	35	1	8	26	5
169	10	B	12	1	5	18	1
190	10	G	1	1	3	21	6
204	11	B	3	1	0	37	5
220	10	B	3	1	1	37	14
230	11	G	9	1	4	21	4
234	12	B	10	1	6	34	13
24	10	B	23	0	8	17	2
69	11	G	7	0	7	25	3
74	10	G	12	0	6	23	11
77	10	G	24	0	6	34	1
87	11	B	10	0	1	9	0
127	11	G	13	0	8	33	1
130	10	G	14	0	6	31	0
153	11	B	12	0	5	26	1
166	10	B	12	0	3	18	0
186	10	G	9	0	1	18	0
206	11	B	7	0	4	24	1
211	11	B	3	0	1	18	1
235	12	B	16	0	5	16	0
239	12	B	17	0	6	14	3
241	12	B	10	0	6	39	0
243	11	B	18	0	6	21	1
244	11	B	13	0	5	19	0