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Social Self-Concept in Preadolescent Children at School: An Investigation of its Structure Using a Structural Equation Modelling Approach

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Dedication

This thesis is dedicated to the memory of my father, William Wilson.

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There are several people without whose active assistance this project would never have been completed. First, I would like to thank my thesis supervisor, Dr. Barbara Byrne, for her support, encouragement, and valuable advice throughout the process.

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On a more personal, but no less significant, note, I would like to thank my husband Luc for his love, his patience, and his thousands of hours of looking after the baby. I would also like to thank my mother, Marie Wilson, for her love, her patience, and her thousands of hours of cooking and doing laundry. Without these two people this thesis would still be an outline today.

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Abstract

This study investigated the structure of social self-concept in preadolescent children at school. Subjects were 227 male and female grade three students from eight schools in a metropolitan area. A multidimensional, hierarchical model of social self-concept was proposed and tested using confirmatory factor analytic procedures within the framework of the analysis of covariance structures. The hypothesized model was based upon the theoretical model of self-concept first proposed by Shavelson, Hubner, and Stanton (1976). Subjects were given two self-report instruments designed to measure self-concept in the areas of social relations with classmates, other children at school, and teachers. Additionally, a teacher rating scale and a peer sociometric instrument were used as measures of the child's actual social behaviour. Data were collected at two time points, in the fall and the spring of the same academic year.

The hypothesized and counterhypothesized models provided a poor fit to the data. Analyses then continued in an exploratory mode. Of all models tested, the best-fitting model of social self-concept was found to be a four-factor model with general self-concept as the first factor, self-concept of popularity as the second factor, social self-concept in general and in regard to school and classmates as the third factor, and social self-

concept in regard to teachers as the fourth factor. Because the facets of social self-concept were found to be less differentiated than hypothesized it was not possible to investigate the proposed hierarchical structure of the construct.

Partial support was found for the hypothesis that social self-concept can be differentiated from social behaviour as measured by peers and teachers. Social behaviour with teachers, in particular, was found to be very different from self-reports of social behaviour. Social behaviour with peers and self-reports of social behaviour with peers were found to be associated moderately, indicating that self and other ratings were referring to the same, or similar, behaviours, but each from their own unique perspective. Analysis of the second time point data did not support the stability of social self-concept over a six month period, indicating the necessity of replicating these results before conclusions can be more than tentative.

This study presented an important possible revision to the Shavelson et al. (1976) model of self-concept. The study demonstrated the salience of popularity in the child's conception of his or her own social relations. It demonstrated, further, that the child's perspective regarding social relations differs from that of peers or of teachers.

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The study of the self-concept has been recognized over the last three decades as a fundamental pursuit in the scientific study of human psychology. Perception of the self is that which has been considered by many philosophers and psychologists to uniquely distinguish human consciousness (e.g., James, 1890). There are few areas of psychology that cannot, or should not, be linked in some way to the concept of the human self. As such, researchers are compelled to cross the arbitrary and artificial boundaries of their own domains in order to investigate the complexities of the self-concept and its relations to other variables.

The study of the self-concept is, therefore, an extremely important area of psychological research, whether it be approached as a primary focus of interest or as a mediator of other variables. Much of the research that touches on the self-concept has been prompted by educational and clinical concerns regarding the relations between self-concept and various behaviours such as academic achievement and career choice.

Considering the central importance of the self-concept construct, it is surprising to find that its definition and structure have not been clearly established. The term self-concept, has often been used in various ways by different researchers. Part of the problem is, of course, that the self-concept is not a "thing" at all, but rather it is a construct or construct system. There is ample opportunity here for

disagreement on the subject of the structure of this construct system. The lack of agreement concerning definition and delineation of the construct has led to the reporting of many contradictory results in the substantive literature regarding the relations between self-concept and other variables (Byrne, 1984 ; Shavelson, Hubner, and Stanton, 1976 ; Wylie, 1974, 1979). Following her landmark review of the self-concept literature, Wylie (1974) pointed to the need for extensive construct validation research in the area of self-concept.

Shavelson and colleagues (Shavelson et al., 1976) addressed this need and proposed a model of self-concept (hereafter referred to as the Shavelson model) that was based on extant theory and could be empirically tested. This model presented a multidimensional and hierarchical self-concept structure that included academic and nonacademic components.

The Shavelson model has undergone considerable construct validation research, and remains one of the few self-concept models to be tested statistically. The bulk of this research has focused on the academic component of the model, however, and has, therefore, been centred largely on children and young adults. There are also nonacademic facets of the self-concept described in the Shavelson model, including social self-concept, physical self-concept, and emotional self-concept. Social self-concept is an area worthy of study because of the relevance of social relations to the life and development of the child. It has

traditionally been in the school environment that the child first comes into the larger social world beyond the family. The peer groups and teachers with whom the child comes into contact play a large role in the development of the child's understanding of society and of himself or herself.

The purpose of the present investigation, in broad terms, is to test the validity of social self-concept structure, relative to the school environment, as conceptualized in the Shavelson model. More specifically, the focus of the study is to test for a multidimensional, hierarchical structure of social self-concept within the context of the school, for preadolescent grade three children.

In order to provide the reader with an initial frame of reference with which to understand certain key terms as they appear throughout this thesis, and to present some of the controversies in the literature concerning the usage of those terms, the literature review begins with a brief guide to key definitional issues. It also provides the author with an opportunity to briefly present her own views on how these terms are best understood. This approach follows from the suggestion of Sloman (1978) that any research involving terms that are colloquialisms must involve an analysis of their conceptual basis. As such, the term self-concept is very present in everyday parlance and may suffer, as a result, from being ill-defined as a scientific term. As Marsh, Byrne, and Shavelson

(1992, p. 47) state, self-concept suffers in that "everybody knows what it is".

The following, then, is a brief guide to some of the more common definitions of "self" related terms, with particular reference to how the terms should be understood as they are presented in this thesis.

Self-Concept

Self-concept is the concept one has of oneself. Thus, it is apparent that in order to define this term we must define "self" and also "concept". A concept, as the word is used in psychological research, refers to the cognitive structures underlying categorical judgments (Stich, 1993). Fruit, for example, is a concept that subsumes the particular instances of apple and orange.

The usages of the term "self" are difficult to enumerate. This is because psychologists and philosophers have employed the term in many different ways to mean many different things. According to Wells and Marwell (1976) the most frequent usages of the term refer to the person, the personality, the body, or the mind. They put forth a definition of self that was intended to capture the way in which it was being used by most researchers as follows:

> "Self" is some specialized cognitive or behavioral subset of the personality. As

> generally used (some psychoanalytic theorists excepted), the self represents that part of the personality which is phenomenal (i.e., perceptual or experiential) and, more specifically, reflexive - the perceiver and the perceived are the same organism. In this way, the person and her body are related to the self insofar as they may be experienced by the person herself, but it is the experiences which constitute the self, not the person or her body. The "self" involves only that portion of the personality which consists of reflexive or self-conscious cognitions and behaviours." (Wells & Marwell, 1976 p. 39)

Putting these terms together, "self" and "concept", we arrive at a definition of self-concept as categorical judgments that one makes concerning one's own self-conscious cognitions and behaviours, or , more simply, one's beliefs and attitudes about oneself. The reader may note a circularity here in that the word self is used in the definition. Wells and Marwell (1976) discuss the difficulty that has been encountered by virtually everyone who has attempted to define self, in that this circularity is ever-present in those definitions. The present author does not claim to have a solution to this problem.

As the reader will note below Shavelson et al. (1976) define self-concept as one's perceptions about the self, and many authors use the terms self-concept and self-perception interchangeably. For this reason self-perception will be synonymous with self-concept throughout this text. It is this author's opinion, however, that the use of the phrase "beliefs and attitudes" is preferable to the word "perception". Percepts, strictly speaking, are momentary representations of current states (Forgus & Melamed, 1976). Self-concept is usually considered to be a more enduring cognitive structure, involving memory of past events in addition to current states.

Self-Concept versus Self

One area in the literature that can be fairly confusing is the distinction between the word "self" and the word "self-concept". For example, it will be seen below that many researchers have based their own work on self-concept, at least in part, on theoretical discussions of self by authors such as James (1890), Cooley (1902), and Mead (1934). Many of these authors make no distinction between the terms self and self-concept. The word self can refer to both, or either, the process or the content (i.e., structure) of reflexive cognitions or behaviours. Brinthaupt and Lipka (1992) consider the process versus structure classification to be perhaps the primary feature distinguishing different theoretical perspectives on definition

of self.

The word self-concept refers more specifically to the content aspect of reflexive cognitions or behaviours. Thus, the word self may or may not be interchangeable with self-concept, depending upon the particular usage. The following review will attempt to be as faithful as possible to the particular author being reviewed by using the word self or self-concept as it was used by the author being reviewed. In the sections relating to the methodology of the present study the word self-concept will be used to refer to the content of one's reflexive attitudes and beliefs, and the word self will be restricted to the process of reflexive cognitions or behaviours.

Self-Concept versus Self-Esteem

Whereas self-concept, the concept one has of oneself, is descriptive, self-esteem, the esteem one has for oneself, is evaluative (Brinthaupt & Erwin, 1992). For example, I may consider myself a poor singer. This is part of my self-concept. However, I give very little importance to my competence in this area. Therefore, although I do not esteem myself as a singer this has little impact on my esteem for myself as a person overall. This distinction between self-esteem and self-concept seems rather straightforward but, in fact, it is not. Note, for instance, that simply by stating that I am a "poor" singer I have already made an evaluative statement. I could also have

described myself as an alto or as a soprano, a descriptive statement that has no evaluative component. In this case my self-concept as an alto sheds no light on whether I think I sing well or poorly, or on whether my singing ability is of any importance to me.

Researchers are divided on whether to treat self-esteem and self-concept separately or as one. Shavelson, Hubner, and Stanton (1976) considered self-concept to be inherently evaluative and did not make any distinction between self-concept and self-esteem. Subsequently,instruments based on their model, notably the three Self-Description Questionnaire (SDQ) instruments developed by Marsh (1992a, 1992b, 1992c), allow no distinction between self-esteem and self-concept. Marsh, Byrne and Shavelson (1992) stated that no difference between self-description and self-evaluation had been established, either theoretically or empirically, and, thus, they considered the two terms to be interchangeable. Bracken and Howell (1991) investigated total scale scores between two measures of self-concept (Piers-Harris Children's Self-Concept Scale; Piers, 1984 and Multidimensional Self Concept Scale, Bracken 1992) and one measure of self-esteem (Coopersmith Self Esteem Inventory; Coopersmith, 1967). They concluded that the significant correlations between the instruments (ranging from $r = 0.73$ to $r = 0.83$) supported the position that self-esteem and self-concept are a single construct or very closely related constructs.

Others, however, have not agreed. For instance, Harter (1985) viewed self-esteem as distinguishable from the descriptive dimensions of self-concept and her instruments reflect this theoretical position. Watkins and colleagues (Watkins, Fleming, & Alfon 1989; Watkins & Gutierrez, 1989; Watkins & Dhawan, 1989); have demonstrated that the theoretical position equating self-concept and self-esteem may be inappropriate for other cultures. Their work with Filipino, Indian, and Nepalese subjects indicates that Asian populations do not have a high percentage of evaluative statements in their spontaneous self descriptions.

It may be that self-concept is evaluative in Western cultures but not in Asian cultures, or it may be, as Watkins and Dhawan (1989) contend, that even in Western populations, the two constructs should not be confounded. Throughout this thesis, the term self-esteem will be used only in the contexts in which it has been used by authors being reviewed. In the present study the word self-concept refers to both the descriptive and evaluative aspects of the construct system, whereas the word self-esteem refers only to the evaluative aspect of the self-concept system.

Self-Concept versus Perceptions of Others

Research examining the construct validity of self-concept has often looked at self-concept as inferred by others to

demonstrate discriminant validity of the self-concept construct. That is, self-concept as reported by the self is contrasted with self-concept as inferred by others, notably teachers and peers (Marsh and Byrne, 1989). The reader should be clear that the teacher and peer ratings reported in this thesis are not measures of inferred self-concept. They are, rather, measures of perceived social behaviour as reported by others. That is, the teachers and classmates were not asked "What do you think is this child's self-concept?" but, rather, "How would you describe this child's behaviour?"

Social Self-Concept

In the present study the term social self-concept refers to one's self-concept of relations with others, or interpersonal relations.

Social Competence

Social competence, in the present study, refers to one's competence in interpersonal relationships. To be competent is to have the capacity to deal adequately with a subject (Oxford, 1987) Thus, to be socially competent is to have the requisite skills to interact successfully with others. Competence is not an objective measure of ability level, but is a subjective, socially-determined construct that is relative to one's level of development (Sternberg & Kolligian, 1990). The social skills

necessary to function as a socially competent eight year old would make for a very socially incompetent 30 year old.

Markus, Cross, and Wurf (1990) also consider competence to be a subjective measure. They argue that felt competence is a component of, and is essential to, actual competence. They refer to the individual's self-concept of competence as "felt" competence. According to their formulation, competence consists of both ability in a domain and a self-schema for this ability. Therefore, social competence is closely related to social self-concept. Presumably, social self-concept would be synonymous with what Markus et al. refer to as the self-schema for ability in the social domain.

In the present study perceived social competence (i.e., when the perceiver is the self) is synonymous with social self-concept.

Models of Self-Concept

The following review of self-concept models is presented in order to situate the Shavelson model historically within the field of self-concept research. Only theories that bear directly on the present study of social self-concept are included.

William James' Model

The contribution of William James (1890), as with his

contributions in so many areas of psychology, has been of inestimable value in furthering our understanding of the psychology of self-perception. James distinguished between two components of the self which he labelled the empirical self and the pure self, or ego. The empirical self corresponds to what he referred to as the Me, and sometimes included the Mine; in the broadest sense, then, the empirical self is everything that an individual would identify as his or hers, the objective aspect of the self. The pure self, or ego, corresponds to the I, or the subjective aspect of self. For example, one could say, I see my face in the mirror, or, I see me.

It is James' conception of the empirical self that concerns us here. He further delineated this aspect of self into three components: the material self, the social self, and the spiritual self. The material self consists of the body and material possessions; the spiritual self refers to the dispositions and inner, or subjective, being, and the social self represents the recognition received by the individual from social contact. It is the social self that is of primary interest in the present study and, therefore, further elaboration of this component is now considered.

James proposed not one, but a multitude of social selves corresponding to every person who would recognize the individual. For practical purposes, the number of social selves was reduced to the number of groups of persons who are significant to the

individual. James postulated that these groups would fall into naturally occurring categories, comprising any group which represents significant others in the life of the subject. Examples of such categories might include parents, children, teachers, friends, employees, employers, and spouse or partner. The exact configuration of the social selves would, thus, be individually determined, based on the societal and cultural environment.

James considered fame and honour to be a particular kind of social self. This is the praise or condemnation bestowed by significant others as a result of fulfilling or failing to fulfil one's societal roles and the requisite obligations of those roles. He called this societal influence "club opinion" and considered it a very powerful determinant of behaviour.

Interestingly, James did not speak of the social self as being located in the individual but he located it instead in the minds of the others who recognized the individual. He posited that it was these opinions by others which brought about the positive or negative valence of the various social selves. According to James, the individual is motivated to seek social attention because such attention is necessary for well-being. He postulated an innate propensity to seek favourable recognition, but argued that unfavourable recognition might also be sought, if necessary, in order to fulfil the need for social attention.

James identified self-complacency and self-dissatisfaction

as the primary emotions associated with the empirical self. He spoke also of fundamental instincts towards self-seeking and self-preservation. Social self-seeking is expressed as a desire to please, to attract favourable attention, and to seek glory, influence and power. The impulse, he argued, is to broaden one's social world through increasingly expansive and prestigious social contacts and, thereby, to enlarge the self. The social self-concept is, therefore, primarily derived from one's own evaluations of the opinions of significant others. Parenthetically, James did not actually mention the term self-concept in his writing but he writes of Self as being part of the stream of consciousness and, therefore, the social self would be synonymous with the social self-concept.

An important distinction made by James in his formulation of the self was that distinguishing possible selves, (i.e., those present at birth), from actual selves, (i.e., the present state of the self). He further argued that the many possible selves within an individual could be antagonistic to one another and could not comfortably co-exist. Therefore, in order to actualize one self as fully as possible, the other selves are suppressed. Through some sort of selection process one self is picked "on which to stake one's salvation" and the others become "unreal" (James, 1890, p. 296). Although James did not specify the mechanics of the selection process, it seems likely that experience and feedback from significant others would be critical

variables in this regard.

The structure of self, as hypothesized by James, is hierarchical, with bodily self at the bottom, spiritual self at the top and various social selves between. The structure is hierarchical in that gratification of the lower selves is subordinated to that of the higher selves.

The social self was conceptualized as consisting of both the actual social self and the potential social self. The possible social self consists of the awareness of other social judges than those immediately present. These other judges are the societal and religious higher order forces which influenced the individual's behaviour. Development of the social self is in the direction of substituting higher tribunals for lower tribunals, with the highest judge being the ideal judge, equated with the concept of God as understood by the individual. According to James' theory, the role of the social self is, therefore, largely an evaluative one.

In sum, the major postulates of James' theory were that the social self is a multidimensional structure, that it is hierarchically organized, and that it is derived directly from experience and interaction with significant others. As will be evident later, there are many important similarities between James' model of the self and Shavelson's model of self-concept.

Symbolic Interactionist Models (Cooley and Mead)

Theorists and researchers whose work is representative of the school of symbolic interactionism have been amongst the most influential in psychological literature on the self-concept. The primary sources of thought in this area are Charles Cooley (1902) and George Herbert Mead (1934), both of whom perceived the self and society as being intimately connected. For these theorists, the self and the social self are synonymous. As such, they posited that the self-concept develops through social interaction, and can be considered meaningful only in that context.

Cooley (1902) was the first to develop the interactionist position. In his view, knowledge of the self results from one's imagined view of how one is perceived by others. Cooley identified three principal elements of the self-concept. The first element comprises the individual's conceptualization of his/her appearance to others; the second is the individual's conceptualization of how those significant other judge that appearance; and the third is an affective element resulting from that judgment.

Cooley (1902) argued that self-concept develops through interactions between the individual and various groups of significant people in his or her environment. He is well-known for likening the self to a looking glass, by which an image of self is reflected back to the individual from other people.

According to Cooley's perspective, without social interaction there would be no knowledge of the self, and therefore, no perception of the self. In sum, the concept of the self must be considered meaningful only in its relation to society.

Mead (1934) expanded the understanding of the social self that had been developed earlier by James and Cooley. He detailed a theory of the development of self that results from the interaction of the individual and society. This development derives from the use of language and other symbols of communication in human culture. Mead emphasized the reflexive nature of the self in that it is both subject and object.

Mead's (1934) definition of the self did not include the bodily, spiritual, or pure selves proposed by James; rather, it was confined to the social self. Mead argued that these other aspects of self exist only within the social self and he perceived the self as a social structure, arising out of social experience. Consistent with James, Mead also conceived of not one, but many selves, arising in relation to different social environments. In his view, without the appropriate social environment, a particular self or aspect of self might never be developed. Thus, according to Mead, the form and structure into which the self develops is not innate, but rather, is entirely socially defined.

Mead (1934) also developed the concept of what he termed the "generalized other". He argued that the self relates not just to

other individuals, but also to social groups, whether those groups be abstract or concrete. For example, a child who attends Girl Guides might have a perception of herself as she relates to other individuals in her Company and she might also have a perception of herself as she relates to the abstract concept of Girl Guides. The relation of the individual to these social groups, as represented by the generalized other, marks the highest development of the self.

Mead (1934) further delineated two stages in the development of the self. In the first stage the self consists of a cognitive organization of the attitudes of others towards the individual. In the second stage this organization of attitudes is augmented by an organization of the attitudes of the generalized other, as manifested in the social group to which the individual belongs. This second stage represents the full development of the self, which is the organization of the individual into a distinct character or personality. Thus, according to Mead, the personality itself evolves from the development of the social self which, in turn, is a result of learning to take the role of the other.

Other symbolic interactionists, notably Sarbin (1954) have expanded the understanding of the development of the self through the stages of infancy and childhood. In his view this development is largely maturationally determined. The social self, according to this model, emerges with language as the child

grasps self related concepts such as "I" and "mine" and group related concepts such as "family' and "friends".

In sum, symbolic interactionist theorists are consistent in describing the self as a multifaceted and organized structure which becomes more clearly defined with maturation. The theories are inadequate, however, in fully describing or explaining how the perception of that self structure occurs. The source of this inadequacy appears to be their failure to account for the internal or introspective contribution to self-perception. Feedback from others may be one source of information about the self but another source is the internal thought processes and emotional states of the individual. This information, although not available to the observer, is readily available to the individual himself or herself. Mead (1934) acknowledged the existence of an internal source of information about the self but he maintained that even this source was socially determined; that is, these internal representations would not have been possible without the initial social formation of the self. Consequently, Mead did not discuss the mechanics of how private information would be incorporated into the structure of the self.

Susan Harter's Model

Some theorists have conceptualized the self as a cognitive system of constructs constituting a theory about oneself and one's relation to the social environment (e.g. Kelly, 1955;

Epstein, 1973, 1983). Amongst the self-theorists, Susan Harter (1983; 1986) stands as one of the most influential of contemporary theoreticians and researchers in the area of self-concept. Harter offered a theory of the developmental changes in both the content and structure of self-theory in children and adolescents. The content dimension of self-theory was depicted as developing from observable behaviour to psychological constructs. The younger child focuses more on physical attributes and behaviours whereas the focus of the older child moves toward emotions, motivations and thoughts.

The structure of the self-theory was defined by Harter as the organization of content into traits, abstractions, hierarchies, and networks. This structure was hypothesized to develop through a series of stages as a result of the child's cognitive development from concrete to abstract and integrated thought.

Harter (1986) identified five domains of importance in the lives of children. The first two deal with areas of competence, specifically, scholastic competence and athletic competence. The next three domains deal with the child's perceptions of adequacy in the areas of social acceptance, physical appearance, and behavioral conduct. Harter also included in her model a component of general self-worth or self-esteem. This element includes a number of general reflections about self, such as the degree to which one likes oneself as a person and feels good

about oneself.

The self-theorists have made many important contributions to the understanding of the self-concept. They are consistent in postulating that the self-concept is best conceptualized as a multidimensional system of constructs. Kelly (1955) conceived of an hierarchical structure of the self-concept, whereas Harter (1986) did not reject the hierarchical structure, but did not incorporate it into her model.

Unidimensional Models (Rosenberg and Coopersmith)

Some theoreticians, such as Coopersmith (1967), have conceptualized self-concept as a unidimensional construct. According to this view, self-concept is an aggregate of one's perceptions of self across all domains of life. The implication of this view is that there is no need to distinguish between, for example, one's academic self-concept and one's social self-concept. Perceptions of self in these domains will be summed to yield a global self-concept.

Coopersmith's (1967) position, although not shared by the other theoreticians reviewed here, has been extremely influential in self-concept research. This influence has largely been due to the popularity of the instrument associated with his theory. Harter (1983) identified the Coopersmith Self-Esteem Inventory (Coopersmith, 1967) as the most widely used instrument in research concerning children's self-concept to that date. Some

theoreticians, however, consider that use of this instrument may not fully depict the distinctions that children make about their perceptions of self in different domains (Harter, 1986).

Another theorist who is generally considered to represent the unidimensional perspective is Rosenberg (1979; 1989). In actuality, Rosenberg's model of the self-concept is very different from that of Coopersmith. Rosenberg acknowledges the multidimensional and hierarchical structure of self-concept. However, he also conceptualizes a separate domain that constitutes the appraisal of global self-worth. In Rosenberg's view, this domain is distinct from the perceptions of adequacy or competency in specific domains of life. He consider, further, that measurement of this domain results in a more meaningful understanding of the individual's self-concept than does measurement of domain specific self-perceptions. Rosenberg's position is, thus, more closely related to that of Harter (1985) than to that of Coopersmith (1967). It is appropriate, however, to consider Rosenberg a unidimensional theorist because of his insistence on measuring only the unidimensional construct of global self-worth. Like Coopersmith, Rosenberg's model has been very influential in research. Blascovich and Tomaka (1990) list the Coopersmith Self-Esteem Inventory (Coopersmith, 1975) and the Rosenberg Self-Esteem Scale (Rosenberg, 1965) as the two measures of self-esteem most frequently used in research. As previously mentioned, some theoreticians (e.g., Wylie, 1979; Harter, 1986;

Byrne, Shavelson, & Marsh, 1992) have concluded that much of the confusion and contradictory results in the literature relating self-concept to other variables has resulted from the use of instruments such as Coopersmith's Self-Esteem Inventory.

The Shavelson Model

The Shavelson model of self-concept (Shavelson et al., 1976) was proposed in recognition of a need for a testable model that unified the common elements of multitudinal definitions of self, self-concept, and self-perception evident in the theoretical and empirical literatures to that time. The model defines self-concept, in its broadest terms, as the individual's perception of his or her self, formed through experience with the environment and influenced by environmental reinforcers and feedback from significant others.

Shavelson and colleagues (1976) postulated seven critical features associated with the construct of self-concept: self-concept is hypothesized to be organized, multifaceted, hierarchical, stable, developmental, evaluative, and differentiable from other related constructs.

Self-concept is considered to be organized in that individual experience is recoded into categories or category systems. These category systems reflect the particular culture and environment of the individual. For example, given the salience of the school milieu in Canadian culture, academic self-

concept would be expected to form a very substantial category system in Canadian school-aged children.

The second feature refers to the multifaceted or multidimensional organization of self-concept. Each category system represents a different facet of the total structure. For example, academic self-concept might define one facet of the structure and social self-concept might define another facet.

The model considers these facets to be hierarchical with particular behaviours or experiences at the base, moving to subareas of self such as academic self-concept and social self-concept, and then to general self. To illustrate, particular classroom experiences might contribute to self-perception in academic and social domains, and, in turn, academic and social self-concept might be two of the systems that defined the higher order system of general self-concept.

The fourth feature of the self-concept construct is stability. General self-concept is considered to be very stable and the other facets to be increasingly less stable, and more situation specific, as the hierarchy is descended. For example, a child might have many changes in her self-concept based on interactions with one other child, but her perception of her ability to get along with peers in general would be more stable, and her perception of her ability to get along with people in general would be even more stable.

The developmental aspect of the self-concept reflects the

child's acquisition of the requisite verbal and cognitive skills necessary for formation of categories of experience. The model proposes that with increasing age the self-concept becomes increasingly differentiated. For example, a younger child might have a self-concept of getting along well with his or her peers, whereas an older child might have a self-concept of getting along well with same sex peers, but not with opposite sex peers.

The sixth feature of the Shavelson model is the evaluative component of self-concept. This is the aspect of self-concept commonly labelled as self-esteem. Each of the facets of self-concept is considered to consist of a descriptive element and an evaluative element. For example, a child might make a simple descriptive statement about his or her social competence or a statement which evaluates the level of that social competence. This approach to incorporating self-esteem into the structure of self-concept differs from the approach of Harter (1985), whose model contains a separate facet of self-esteem, or general self-worth, as it is called by her.

Finally, the model proposes that self-concept is differentiable from other constructs with which it may be theoretically related. For example, there may be a relation between social self-concept and social behaviour, but the model would hold that they are not identical constructs and, therefore, should be differentiable from each other.

As an aid to research bearing on the validation of self-

concept in the framework of a testable theory, Shavelson and colleagues (1976) proposed a possible representation of the dimensional and hierarchical structure of self-concept. This hypothesized model is presented in Figure 1. Accordingly, general self-concept appears at the apex of the hierarchical structure; descending the hierarchy, the facets of self-concept become increasingly differentiated; at the base of the hierarchy, self-concept is specifically linked to actual behaviours.

Insert Figure 1 about here

General self-concept divides first into academic and nonacademic self-concept. Academic self-concept further divides into self-concepts relating to specific subject areas such as Math and English. Non-academic self-concept divides into social self-concept, physical self-concept and emotional self-concept. Social self-concept is portrayed as dividing further into relations with peers and relations with significant others. Shavelson et al. (1976) postulated that the closer the link between a particular self-concept facet and the actual behaviour that it reflects, the higher the correlation between the two should be. Thus, for example, the correlation between math self-concept and grades in math should be higher than the correlation between general self-concept and grades in math.

The proposed model, as originally presented, (Shavelson et

al., 1976) was intended to provide a working outline of the possible structure of the self-concept system. Indeed, the focus of the model at that time was the academic component of self-concept and the details of the structure of social self-concept were provided largely for illustrative purposes. Delineation of the dimensional structure of social self-concept, to date, has not been tested. Thus, construct validity research is needed in order to further the understanding of social self-concept.

Empirical Support for the Shavelson Model

The original Shavelson et al. (1976) review did not find strong or unequivocal support for either the multidimensional or hierarchical structure of self-concept. The authors attributed the weakness of support, in part, to the lack of availability of suitable instruments. Subsequent to that review self-concept instruments have been developed that are designed to complement the multidimensional theoretical position (Marsh, 1992a; Marsh, 1992b; Marsh, 1992c).[1] Consequently, there is now a sizeable body of construct validation research supporting the framework of the Shavelson model. By far the greatest part of this research has focused on the academic component of the model, perhaps

[1]Although the three instruments above were published in 1992, earlier versions were available (Marsh, 1988) and were used in the formulation of items used in this thesis.

reflecting the relevance of the model and the instruments to educators.

One of the earliest of these studies (Shavelson & Bolus, 1982) examined the structure of academic self-concept for 99 junior high school students using analyses of covariance structures. Results supported the multidimensional and hierarchical structure of the Shavelson model. General self-concept was distinct from, but correlated with, academic self-concept. Subject-matter specific facets of academic self-concept were also found to be distinct from, but correlated with, one another and with general and academic self-concept.

Numerous studies by Marsh and colleagues (Marsh, Parker, & Smith, 1983; Marsh, Relich, & Smith, 1983; Marsh, Smith, & Barnes, 1983, 1984, 1985; Marsh, Barnes, Cairns, & Tidman, 1984; Marsh, 1986, 1987; Marsh & Smith, 1987) have demonstrated the multidimensional structure of self-concept in preadolescent children using the Self-Description Questionnaire I (SDQI; Marsh, 1992a). The SDQI was subsequently tested on a normative data base of 3,562 response sets, including the data reported in the studies cited above. Results clearly identified the viability of the multidimensional conception of self-concept. Originally, Marsh included 7 factors or dimensions of self-concept, as follows: Peer relations, parent relation, physical abilities, physical appearance, reading, math, and general-school self-concept. Subsequently, an 8th factor was added, the General-Self

scale. This scale is distinct from the other facets of self-concept, but Marsh (1988) advises that it be interpreted with caution because it is not as well established as the other 7 factors, either theoretically or empirically.

The hierarchical structure of self-concept has not been found to be as straight-forward as initially presented in the Shavelson model. The model proposed that reading self-concept (or verbal self-concept, as it is alternatively labelled) and math self-concept would be incorporated into a single higher order factor of academic self-concept. Instead, reading self-concept and math self-concept have been found to be nearly uncorrelated in preadolescent, adolescent, and adult samples (Marsh, Barnes, Cairns, & Tidman, 1984; Marsh & Shavelson, 1985; Marsh & Hocevar, 1985; Marsh, Byrne, & Shavelson, 1988). This finding resulted in a revision of the Shavelson model, such that 3 second-order factors were posited, namely, nonacademic, math/academic and verbal/academic self-concepts (Marsh & Shavelson, 1985).

An exception to the near-zero correlation between math and reading/verbal self-concepts was found in children in grades 2 through 4 (Marsh, 1986). For this group the correlation was 0.17, a statistically significant relation. Apparently children at this age do not make the same differentiation between subject areas that older children and adolescents make. This supports the observation of Harter (1986) and others (e.g., Marsh, 1988)

that self-concept is relatively more undifferentiated before age 8 than after that age.

Marsh and Parker (1984) sought to replicate studies that showed that students in low socioeconomic status (SES) schools had higher self-concepts than did students in high SES schools (i.e., Soares & Soares, 1969; Trowbridge, 1972). In their study Marsh and Parker controlled for family SES and for academic ability. They found school SES and school average-ability to be very highly correlated and therefore referred to these two variables as a single variable, school-average ability/SES. They found the zero-order correlations between academic self-concept and school SES to be much higher than did the earlier studies in which these variables were uncontrolled. Thus, they concluded that the previous studies had underestimated the negative impact of school SES on academic self-concept. Marsh and Parker (1984) labelled this phenomenon the Big Fish Little Pond Effect (BFLPE).

They proposed a frame of reference model to account for the BFLPE. According to this model, students arrive at an academic self-concept by comparing their own academic ability to their perceptions of the academic ability of other students around them, that is, to their reference group. Thus, a student of average ability in a high ability school will have a lower academic self-concept than a student of the same ability level in a low ability school. This is because the student in the high ability school will compare himself or herself to students of

higher ability than will the student in the low ability school.

Marsh (1986) employed another frame of reference model to explain the consistent finding that math and verbal self-concepts are nearly uncorrelated. According to this model the student uses both internal and external frames of reference, or comparisons, in formulating his or her self-concept. He therefore labelled it the Internal/External Frame of Reference model, or the I/E model.

The external frame of reference is operative when the student compares his/her perceptions of his/her own ability in the subject area with the perceived abilities of other students in the environment. The internal frame of reference is operative when the student compares his/her perceptions of his/her ability in one academic area (for example, math) to his/her perceptions of his/her ability in the other academic area (i.e., in this example, reading). That is, the student's self-concept regarding math is formulated relative to his/her self-concept regarding reading and vice versa. Because achievement in math and reading are substantially correlated the external comparison process should lead to a positive correlation between math self-concept and reading self-concept. The internal process, however, should lead to a negative correlation between the two self-concepts, because they are being compared to each other. When these two processes are combined in a single individual, one with a negative correlational influence and the other with a positive

correlational influence, the resulting actual correlation between the two self-concepts approximates zero. That is, the two influences counterbalance each other, or actually cancel each other out.

The I/E model also has been used to explain the finding of counterintuitive relations between academic achievement and math and reading/verbal self-concept. Marsh (1986) reported that in spite of the near-zero correlation between math and reading/verbal self-concept, achievement in those two areas has consistently been found to be positive and substantial. He also found that the effect of math achievement on reading/verbal self-concept and the effect of reading/verbal achievement on math self-concept is significantly negative. These results are understandable in terms of the I/E model. The model predicts that math self-concept will be highest when math achievement is high and math achievement is higher than reading/verbal achievement. When math achievement is controlled for, it is the difference between math and reading/verbal achievement that will determine the math self-concept. Marsh (1988) concludes that this model demonstrates that there are different processes determining academic self-concept than merely academic achievement.

Importance of Self-Concept

In order for self-concept research to be a worthwhile pursuit it is necessary to demonstrate the importance of self-concept in the life of the child. There is a multitude of research relating various other variables to self-concept. This research is often concerned with self-concept only peripherally. For instance, a researcher might be interested in the effects of a specific programme on reading. Among other dependent variables the researcher may report that the child's self-concept of reading ability goes up (or down) as a result of the programme. Or, a researcher testing a programme designed to improve a child's social skills may include an outcome measure of the child's general self-esteem.

The issue that these researchers seldom address is the relevance of the increase or decrease in self-concept. What difference does it make if the child has an increase in verbal self-concept, or in general self-esteem? For instance, Marsh and Parker (1984) assert that it is better for a gifted child to be in a non-congregated ability-level class because of the BFLPE. This effect, which they interpret as supporting the internal/external frame of reference model, states that the child is better off as the brightest child in a multi-ability class than as an average child in a high ability class because the child will have a higher academic self-concept in the multi-

ability class. However, Marsh and Parker's conclusion that the child is better off being a Big Fish in a Little Pond is unwarranted because they do not demonstrate any benefit deriving from the higher academic self-concept. This is not to say that such benefits do not exist, but only that Marsh and Parker do not demonstrate any benefits. Nor do most researchers who may include a measure of self-concept as a dependent variable in an experimental design.

There are, however, some researchers who have considered the theoretical and empirical consequences of self-concept. Susan Harter (1993) has investigated the relation between self-esteem and affect. She reports that self-esteem is consistently and highly related to affect in her research, with correlations ranging from 0.72 to 0.80. She has measured affect along a continuum from cheerful to depressed and found the relation to self-esteem to hold at all points of the continuum. Her samples have included both clinical and nonclinical populations of children and adolescents, and she has found a consistent relation between low self-esteem and depressed affect.

Harter and colleagues have also investigated the relations between low self-esteem and suicidal ideation (Harter & Marold, 1991, 1992) in adolescents. They propose a model including what they label the "depression composite" (Harter, 1993), which consists of low self-esteem, depressed mood, and general hopelessness. According to the model, general hopelessness is a

result of (a) self-perceptions of incompetence in domains of importance to the individual and to the parents, and (b) perceptions of nonsupport, or conditional support, from parents and peers. The model predicts that the presence of this composite will likely lead to suicidal ideation. Harter states that this model has important implications for both treatment and prevention of depression in adolescents. Specifically, she proposes that the most powerful interventions will be those that influence self-concept and perception of social support since these are the model's major causal influences on depression. It is important to note here that a measure of global self-esteem, taken alone, would not be helpful in identifying that area of self-concept related to the adolescent's depression. Instead, it would be necessary to identify the specific area in which the teen is feeling incompetent or feeling a lack of social support. Harter recommends that intervention be directed towards improving competence in areas of importance, or to discounting the importance of those areas, or to improving social support from significant others. These interventions, according to her model, circumvent the onset of the "depression composite" that can lead to suicidal ideation and other manifestations of depression. Harter (1993) and Harter and Marold (1992) have demonstrated the importance of self-concept in adolescent depression. Further investigation of preadolescent self-concept may reveal important precursors to suicidal ideation.

Hymel and Franke (1985) have investigated the role of social self-perceptions in socially isolated and rejected children. They noted that not all unpopular children report the same self-perceptions. Some children may be unaware of their unpopularity whereas others may be very aware of their social status and feel unhappy or lonely. Hymel, Freigang, Franke, Both, Bream, and Borys (1983; reported in Hymel & Franke, 1985) found that self-reported loneliness in children was associated with lower self-perceptions of social competence. Thus, there may be two or more subgroups of unpopular children, distinguishable on the basis of self-concept measures.

Hymel and Franke (1985) reported that, in addition to loneliness, self-perceptions of social competence in children is associated with social anxiety in children in grades three through six. Additionally, among female but not male subjects, social anxiety is associated with a general pattern of negative self-perceptions, including loneliness and social dissatisfaction.

Finally, Hymel and Franke (1985) presented assessment summaries of six children from their sample. They used these data to illustrate that children who may be indistinguishable on the basis of peer assessment measures of social functioning (based on the Revised Class Play [RCP; Masten & Morison, 1981]) may differ on the basis of self-report measures. For instance, two female children in their sample, both of whom were rated

similarly unpopular by their peers, differed in that one was aware of her poor social status, was disturbed by it and tended to avoid social interaction, whereas the other was seemingly unaware of her unpopular status, felt positively towards peers and had no tendency towards social avoidance. Hymel and Franke concluded that these individual differences in self-perceptions warranted further investigation of the efficacy of social skills training for these two types of children.

Additionally, negative self-perceptions have long been considered to be of importance in clinical psychology, particularly in the investigation of depression (Beck, 1967; Higgins, 1987). Taken together, these studies indicate that the investigation of self-concept is an area of clinical and scientific importance in that measures of self-concept can provide us with information about the inner life of the child that is not available from other commonly used sources such as peer or teacher ratings.

Limitations of Previous Research

As previously stated, the focus of research fostered by the Shavelson model has largely been directed towards academic self-concept. There has been virtually no construct validity research directly investigating the multidimensional or hierarchical structure of social self-concept. It has been demonstrated that social self-concept can be differentiated from other facets of

self-concept (Marsh, 1988) but, beyond this, there is little known of its structure.

It is very difficult to proceed with an investigation of the relations between social self-concept and other variables when the structure of self-concept construct is not clear. However, there has been some attempt to relate social self-concept to other variables. For example, Ledingham, Younger, Schwartzman, and Bergeron (1982) reported that children's self-ratings of social behaviour correlated poorly with other ratings. Green and Forehand (1980) observed that self-concept measures are seldom used in assessment of children's social skills. One important reason for this omission has undoubtedly been the neglect of construct validation research in this area. Hymel and Franke (1985) note that differences between self-perceptions and others-perceptions can be an important source of information about the child, rather than merely an indication of lack of validity of self-reports. They emphasize the importance of investigating the relations between social self-concept and other variables such as loneliness, popularity, and social anxiety.

It is clearly vital to conduct the necessary construct validity research that will allow these other important issues to be addressed. Until the structure of the social self-concept is delineated, substantive research may continue to produce confused and contradictory results.

An example of the importance of investigating the structure

of self-concept is found in the revision of the Shavelson model to include the two facets of math and verbal academic self-concept. The implications of this revision are that a general-academic measure of self-concept will be inadequate to reveal the complexities of academic self-concept in the math and verbal domains. The logical extension of this finding is that the structure of social self-concept may also be found to differ from the original conceptualization of the Shavelson model. It is possible, for example, that general social self-concept may also mask some of the complexities of other aspects of social self-concept.

Purpose of the Study

In an attempt to lay the groundwork for validity research bearing on the social self-concept Byrne (1990) proposed a modification of the social self-concept portion of the Shavelson model. As shown in Figure 2, general social self-concept is hypothesized to subdivide into social self-concept as it relates to school and to the family. Social self-concept (school) is further subdivided into social self-concept (peers) and social self-concept (teachers).

Insert Figure 2 about here

The purpose of the present study is to test the portion of this proposed structure that pertains to social self-concept in the school. The primary intent of this thesis is to test the structure of social self-concept at school for grade 3 children. More specifically, the purposes are fourfold: (a) to test for a multidimensional structure of social self-concept, (b) to test for a hierarchically structured social self-concept, (c) to test for the discriminability of social self-concept from actual social behaviour, and, (d) to test the stability of social self-concept over time. A more detailed description of the related rationale now follows:

The multidimensionality of self-concept is supported by much of the self-concept theory presented in this thesis. There are still researchers, however, (e.g., Rosenberg, 1989) who hold that self-concept is, for purposes of measurement, a unidimensional construct. Investigation of the multidimensionality of social self-concept is considered important, therefore, in order to clarify this issue. The school environment presents one of the most salient socializing influences in the life of the child in our society and, therefore, it is the social self-concept at school that will be the focus of this study.

The hierarchical organization of social self-concept is also worthy of investigation. As previously stated, the hierarchical structure of academic self-concept has been found to differ from that of Shavelson's original model. Additionally, some

theoreticians most significantly Harter (1986), have reserved judgment on the issue of whether self-concept is hierarchically structured at all. Thus, clarification of the hierarchical organization of social self-concept seems necessary.

The third area of investigation will involve establishing the differentiability of social self-concept from teacher and peer measures of social behaviour. If social self-concept is a meaningful variable, that is one with some heuristic value, it should be distinguishable from other related constructs, such as social behaviour.

The final area of investigation will involve examining the stability of social self-concept over an approximately six month period. This time period has been chosen because (a) it falls within the range of a single school year; (b) social self-concept as a construct will have little usefulness in research or clinical practice if it is not stable for at least this period of time, and (c) because changes in both the structure and content of self-concept can be expected with development (Harter, 1989) a six-month time period is considered to be optimal for purposes of this study in minimizing the results of such developmental effects.

Social self-concept, for purposes of the present study, is operationally defined as the individual's self-concept of his or her own social competence. The investigation of social self-concept structure will focus specifically on children of

approximately 8 years of age, which is the earliest age at which the structure of self-concept is expected to be readily defined (Harter, 1986), and will examine social self-concept only in the school setting. While acknowledging that there are other significant areas of the child's social development, most notably the family, this thesis does not attempt to address those areas.

Statement of Hypotheses

Hypothesis I. Social self-concept is a multidimensional construct comprising facets that include the school. Social self-concept relating to school can be further delineated into aspects relating to teachers and to peers.

Hypothesis II. Social self-concept is hierarchically structured and forms part of a larger self-concept structure that is also hierarchically ordered, with general self-concept at the apex, descending to general social self-concept, and then to subareas of social self-concept that are more situation-specific.

Hypothesis III. Social self-concept is differentiable from social behaviour as evaluated by teachers and peers.

Hypothesis IV. Social self-concept structure is stable over a six-month time period.

Method

Sample and Procedure

Subjects

Subjects were grade 3 students from six schools in the Carleton Board of Education and two schools in the Carleton Separate School Board. Data were collected from 231 children (118 girls; 113 boys; mean age = 8 years). Four cases were deleted from the analyses due to missing data, leaving a sample size of 227. Sample size met the demands of large-sample theory that ensconces the analysis of covariance structures. It is now widely known that sample sizes less than 200 can lead to innumerable problems related to parameter estimation and solution convergence (Boomsma, 1982; Marsh, Balla, & McDonald, 1988).

In order for a child to participate in the study consent was required from numerous persons. These included the principals and teachers of respective schools and classrooms, parents, and the children themselves. Because (a) the Ethics committees of both the University of Ottawa and the school boards required that children have an independent voice in determining whether or not they wished to participate in the study, and (b) the children were considered too young to sign a consent form, the study was explained to the children orally when the researcher arrived at

the class and their consent to participate was obtained at that time. The oral consent statement and other consent forms are contained in Appendix A. Only those children for whom all levels of consent were obtained participated in the study.

The schools involved in the study were suburban schools in a metropolitan area. These schools largely comprise middle class families for whom English is the first language. There were no learning disabled classes, English as a second language classes, or gifted classes involved in the study. As such, although individual demographic data are not available for the children in the study, there is no reason to believe that readability of items was a problem for this population.

Data Collection

Data were collected at two time points, in the Fall and the Spring of the same academic year. At the first time point, data were collected by the author and by two undergraduate assistants trained by the author. At the second time point data were collected by one of the research assistants used in the first data collection process.

During the training period the assistants memorized the instructions to the children and then rehearsed them with the author. Role playing sessions were conducted in order to anticipate the sorts of questions the children might ask or the difficulties the assistants might encounter. The author

accompanied each assistant to the first two classes in which data were collected.

Due to the necessity of obtaining consent, not all children in any given class were involved in the study. Therefore, in most cases, the researchers took the participating children to a separate room, away from the teacher and the rest of the class. In some cases children from two or more classes in one school were combined into a larger group during the testing sessions. Data were collected in two sessions of approximately 45 minutes each. The two sessions were conducted on the same day (before and after recess). In addition to the instruments for this study the children also completed achievement tests for another aspect of the larger study from which this thesis was drawn.

Sessions began with a brief introduction to the study and reading of the oral consent form (see Appendix A). The children were then given instructions for completion of the self-concept questionnaires, beginning with the SDQI (Marsh 1992a) and followed by the Self-Perception Profile for Children (SPPC; Harter, 1985). All instructions to the children are contained in Appendix B. A copy of each instrument administered is found in Appendix C. Data were then collected for a concurrent study of the children's reading and mathematics abilities. This completed the first session of testing.

The second session was held after a break for recess. This session involved completion of the RCP (Masten, Morison, &

Pellegrini, 1985)(see Appendix B for these instructions). Sessions ended by thanking the children for their participation and reminding them that we would see them again later in the year. The Teacher's Rating Scale of Child's Actual Behaviour(TRS; Harter, 1985) was completed by teachers at some time during the week of testing.

Instrumentation

A battery of four measures that included self-reports, a teacher rating scale, and peer nomination scale was used to measure multidimensional facets of perceived social competence (i.e., social self-concept), and social behaviour. All instruments were chosen on the basis of their psychometric soundness and normative data related to grade 3 children.

Self-Description Questionnaire I (Marsh, 1992a)

The SDQI was developed to measure different areas of self-concept based on the theoretical framework of the Shavelson model (Shavelson, et al., 1976). It includes 8 subscales designed to measure self-concept in the following domains: physical abilities, physical appearance, peer relationships, parent relationships, general-self, reading/verbal, maths, and school.

Only the social self-concept and general-self subscales were

used in the present study. Additional items designed to measure specifically proposed social facets were developed from the original subscales. These items measured social self-concept in the areas of school, classmates, and teachers.

A plethora of validity and reliability research on this instrument has provided an abundance of evidence supporting its psychometric soundness across a wide variety of child populations (Marsh, 1988). Internal consistency reliability for all subscales in the SDQI have been shown to range from 0.83 to 0.92 (Md = 0.87), these data being based on close to 30 independent studies (Marsh, 1988). Stability of responses over a six month period were high for most subscales (Mean r = 0.61) with the exception of the Parent Relations scale at grade 4 (r = 0.27). The factor structure of the subscales has been replicated across more than a dozen factor analytic studies of diverse populations of children, including the 3,562 sets of responses in the normative data base (Marsh, 1988).

Self-Perception Profile for Children (Harter, 1985)

The second measure of self-concept, the SPPC (Harter, 1985) was developed for use with elementary school-aged children. This instrument contains 6 subscales designed to measure self-concept in the domains of scholastic competence, athletic competence, social acceptance, physical appearance, behavioral conduct, and general self-worth.

Method

This study utilized the social acceptance and general self-worth subscales. Additional items were developed from the original subscales in order to measure specific proposed social facets. These items measured social self-concept in the areas of school, classmates, and teachers.

The SPPC has demonstrated strong evidence of validity and reliability (Harter, 1986). Internal consistency reliability ranging from 0.71 to 0.86 (Md = 0.80) has been reported (Harter, 1985). Factor patterns for third and fourth grade children do not support clear distinction of all subscale factors at this age level. It appears, rather, that a four-factor pattern is likely to emerge, with Scholastic Competence and Behavioral Conduct or Scholastic Competence and Social Acceptance, defining one of the factors. The SPPC has demonstrated strong concurrent validity with the SDQI (Byrne & Schneider, 1988).

Teacher's Rating Scale of Child's Actual Behaviour (Harter, 1985)

The TRS (Harter, 1985) was designed to parallel the SPPC and, therefore, individual items correspond directly to those in the child's self-report instrument. As such, it is intended that the child's self-perceptions and teacher perceptions are anchored in the same behaviours. No psychometric data are available for this instrument.

Revised Class Play (RCP; Masten, Morison, & Pellegrini 1985)

This instrument asks children to nominate classmates for specific roles in a proposed play. The rationale for this procedure is that children will be nominated for roles to which they are perceived by their classmates to be suitable. Items reflect the positive and negative social roles commonly encountered in classroom behaviour. In this study only the sociability subscale was used. Internal consistency reliability of the RCP scales has been reported to range from 0.81 to 0.95 (Md = 0.92) (Masten & Morison, 1981). More particularly, the sociability subscale demonstrates reliability ranging from 0.93 to 0.95. Six-month test-retest stability in children in Grade 3 was reported to be 0.85 for the sociability factor.

Statistical Analyses of General CFA Models

Hypotheses related to the present thesis were tested using confirmatory factor analytic (CFA) procedures within the framework of the analysis of covariance structures. Specifically, the analyses were conducted in two primary stages. First, preliminary analyses of the data were conducted using the SPSS statistical package to (a) test assumptions of normality and linearity underlying the analysis of covariance structures, (b) test the factorability of the covariance matrix, (c) screen for outlying scores and missing data, and, (d) conduct exploratory

factor analyses (EFA's). Second, analysis of covariance structures tested hypothesized CFA models using the Lisrel VII statistical program.

Analysis of covariance structures involves the postulation and testing of statistical models. Such models operate as visual representations of hypothesized relations among a set of observed and/or unobserved variables as supported by theory and empirical research. Only CFA models are of interest in the present thesis. Accordingly, this section begins with a general description of the CFA model and then proceeds with an elaboration of the methodological strategies employed in testing the hypothesized CFA models of this thesis.

Specification and Testing of General CFA Models

Confirmatory factor analyses are used to test hypothesized relations between a set of observed variables and their underlying constructs. In the analysis of covariance structures, constructs are referred to as latent variables (or factors) since they are unobserved and cannot be measured directly. As a consequence, the researcher must measure behaviours that can be observed and that are considered to be representative of the construct. The measured behaviours represent observed variables, which are often termed indicator variables in covariance structure analysis.

Confirmatory factor analysis demands that the researcher

have prior knowledge of the relations between the observed and latent variables. This knowledge is based on theory, empirical investigation, or, more commonly, a combination of both. Thus, a model is specified in advance of the analysis. The model specifies a priori the number of latent variables and the pattern by which observed variables are linked to each latent variable (i.e., load on each factor). Associated with each observed variable (i.e., indicator variable) is an error term which represents both random and nonrandom errors of measurement. Once the model is specified, the data are then tested to determine the extent to which they "fit" the hypothesized structure. The adequacy of the fit is then evaluated. The process of statistically specifying the model and evaluating the fit is detailed below. Before proceeding to those topics, however, it is important that the reader be familiar with the terminology and notation system commonly used with CFA models.

Terminology and Notation Associated with CFA Models. The schematic representation of CFA models follows the traditional conventions of path analytic diagrams. Thus, written in schematic form, a CFA model will consist of a number of circles, boxes, unenclosed variables, and arrows connecting them. Circles are used to represent latent variables and boxes to represent observed variables. Error terms are typically represented by "e's" and are left unenclosed. A straight arrow leading from one

variable to another indicates an assumption of a causal relationship between the variables, with the variable at the base of the arrow "causing" the variable at the head of the arrow. A curved two-headed arrow between two variables indicates that the two variables are correlated.

In the LISREL lexicon observed variables are denoted by Roman letters; latent variables and error terms are denoted by Greek letters. The CFA model is a special case of the general covariance structure model in which there are only exogenous (i.e., independent) variables; as such, all observed variables are specified as "x's". The model comprises the observed variables (x's), the latent variables (ξ's), the effects of the latent variables on the observed variables, which represent the factor loadings (λ's), and measurement error in the observed variables (δ's). The variance-covariance matrix of the latent variables is specified as phi (Φ). The variance-covariance matrix of unique components, or error, is specified as Theta Delta (TD; Θ_δ). The factor loading matrix is specified as Lambda (Λ_x).

For example, Figure 3 illustrates a model with two latent variables (ξ_1, ξ_2). The latent variables are correlated with each other, as indicated by the curved two-headed arrow connecting them. As indicated by the boxes, there are two indicator variables associated with each latent variable (x_1, x_2, x_3, x_4). Associated with each indicator variable is an error

term ($\delta_1 - \delta_4$). The details of how the model is specified using the Lisrel VII programme are outlined below.

Insert Figure 3 about here

Model Specification in CFA Modeling. The general regression equation for a CFA model is as follows:

$$x = \Lambda_x \xi + \delta$$

Consider the example of the two-factor model given above. Written in matrix form, the equation becomes:

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} \lambda_{11} & 0 \\ \lambda_{21} & 0 \\ 0 & \lambda_{32} \\ 0 & \lambda_{42} \end{bmatrix} \begin{bmatrix} \xi_1 \\ \xi_2 \end{bmatrix} + \begin{bmatrix} \delta_1 \\ \delta_2 \\ \delta_3 \\ \delta_4 \end{bmatrix}$$

There is one column of Λ_x corresponding to each latent variable. Subscripts refer to the row and column position within the matrix. For example, λ_{32} refers to the coefficient in the third row and second column of the Λ_x matrix. A zero in the Λ_x matrix indicates that the corresponding indicator variable is hypothesized to load on the latent variable in that column.

In order to represent the covariances between the factors and between the error terms those vectors (ξ and δ) are expanded to symmetrical matrices (Φ and Θ). Because the matrices are

symmetrical, traditionally only the lower half of the matrix is written. The matrix form of the equation then becomes

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} \lambda_{11} & 0 \\ \lambda_{21} & 0 \\ 0 & \lambda_{32} \\ 0 & \lambda_{42} \end{bmatrix} \begin{bmatrix} \phi_{11} & \\ \phi_{21} & \phi_{22} \end{bmatrix} + \begin{bmatrix} \theta_{11} & & & \\ 0 & \theta_{22} & & \\ 0 & 0 & \theta_{33} & \\ 0 & 0 & 0 & \theta_{44} \end{bmatrix}$$

Within the Λ_x matrix one parameter in each column will be set to a value of one for purposes of statistical identification, and to set the metric for each latent variable. The result of this specification is that the other parameters to be estimated in the same column will be set to the same scale. In the example above, therefore, the parameters to be estimated are a) λ_{21}, λ_{42}; b) ϕ_{11}, ϕ_{21}, ϕ_{22}; and c) Θ_{11}, Θ_{22}, Θ_{33}, Θ_{44}.

Although the LISREL programme provides for a variety of estimation methods, the one most commonly used, and which yields optimal estimates when all assumptions are met, is that of Maximum Likelihood (ML); this was the procedure used in the present study.The use of ML estimation procedures demands two important assumptions be met. First, it assumes that the data are multivariate normal. Second, the covariance matrix of the data must be positive definite since only matrices that are positive definite can be inverted and matrix inversion is necessary to the ML method of estimation.

Once the data have been fitted to a specified model the researcher then assesses the adequacy of the fit. Typically the researcher will test both the hypothesized model and one or more counterhypothesized models that may be suggested by other theories or other previous empirical research. Given an adequate fit to the data, the research may investigate other aspects of the theory under investigation. In contrast, if the fit is inadequate, post hoc investigations are typically conducted to determine the sources of misfit and the model is respecified and reestimated. However, it is important to note that once post hoc model-fitting is initiated, the analyses take on an exploratory, rather than a confirmatory, mode. Both assessment of fit and subsequent post hoc investigations are now described in sections below.

Assessment of Fit in CFA Models. In determining the extent to which an hypothesized model fits the data, the LISREL programme utilizes chi-square as the test statistic. This statistic tests the null hypothesis that:

$$\Sigma = \Sigma(\Theta),$$

where Σ is the population covariance matrix of the observed variables, Θ is the vector of the free parameters of the specified model, and $\Sigma(\Theta)$ is the covariance matrix implied by the

specified model. In other words, the chi-square statistic tests the null hypothesis that the variance-covariance matrix found in the data is consistent with the variance-covariance matrix hypothesized by the model.

However, a plethora of statistical research over the past decade (e.g. Bollen and Long, 1993) now supports the argument that the chi square statistic should not be relied upon alone as a criterion for rejecting the null hypothesis. Bollen and Long (1993) outline several reasons for this caution. First, social science models almost always are imperfect approximations of reality. Thus, a statistic that assumes an exact fit is unsuitable for the level to which social science has advanced at this time. Secondly, the chi square statistic is generally applied without regard to the power of the test. It is known, however, that the power of the test increases significantly with sample size and that there is a nearly perfect relation between rejection of the null hypothesis and sample size (Saris, 1993). Thirdly, the test is very sensitive to violations of the assumptions of distribution and such violations can lead to improper conclusions. For these reasons most researchers will not rely solely on the chi square statistic but will look instead to a variety of nonstatistical criteria for assessing model fit. (For reviews of these criteria, see Marsh, Balla & McDonald, 1988; Bollen, 1989.) Nonstatistical criteria used as adjuncts to the χ_2 in this thesis are outlined below:

Method

a) **The Adjusted Goodness-of-Fit Index** (AGFI; Joreskog & Sorbom, 1989). This index, which is a function of chi square, measures how much better the model fits compared with no model at all. Sample size is taken into account in the computation. This index is computed automatically by the Lisrel VII programme according to the following formula:

$$AGFI = 1 - \frac{(p + q)(p + q + 1)}{2d}(1 - GFI),$$

where d is the degrees of freedom of the model, p + q is the number of observed variables analyzed, and 1 - GFI is the ratio of the minimum of the fit function after the model has been fitted to the fit function before any model has been fitted (Joreskog & Sorbom, 1989). Values range from 0 to 1.0 with a higher value indicative of a better fit.

b) **The Comparative Fit Index** (CFI; Bentler, 1990). This index compares how much better the model fits compared with a null model in which all the indicator variables are uncorrelated. Like the AGFI it also takes sample size into account. The equation for computing the CFI is as follows:

$$CFI = \frac{(\chi^2 - df_0) - (\chi^2 - df_k)}{\chi^2 - df_0}$$

where df_0 is degrees of freedom of the null model and df_k is

degrees of freedom of the restricted model. Values range from 0 to 1.0 with a higher value indicative of a better fit. While there are no clear criteria for what constitutes a good fit, a value of less than 0.90 is usually considered to be indicative of an inadequate model.

c) **The Expected Cross-Validation Index** (ECVI; Browne & Cudeck, 1989). This index estimates the likelihood that a model will be replicated in another sample. It employs a single sample approximation of the earlier method of cross-validation in which a data set is split in half for the purpose of forming a calibration sample and a validation sample (Cudeck, 1983). The ECVI uses only the calibration sample, thus, eliminating the problem of needing an excessively large initial sample. According to this index a smaller value is better fitting because it will be a more replicable model. The ECVI is defined by the following formula:

$$ECVI = \frac{\chi^2}{n} + 2\left(\frac{q}{n}\right)$$

where n is sample size minus one, and q is the number of parameters to be estimated in the model. The best-fitting model is considered to be the one with the smallest value.

d) Finally, the model must be theoretically and substantively meaningful. That is, the parameters estimated in the model must be consistent with theory and/or empirical research. This is

generally considered to be the most important criterion (Joreskog, 1993).

Post Hoc Analyses in CFA Modeling. If the model is found to provide an inadequate fit to the data, the researcher will continue in an exploratory (rather than confirmatory) mode to determine the model that best describes the data. The exploration consists of respecification and reestimation of the model based on the results of the initial test. According to Bollen (1993), the most important source of information for respecification is the researcher's substantive and theoretical knowledge.

For example, in our illustrative model above, the researcher may suspect that there are three latent variables underlying the observed variables rather than two. Alternatively, the researcher may have reason to believe that the error terms of two or more of the observed variables are correlated. In this case, the parameter that defines the relation between the two error variables, previously constrained to be equal to zero, would be freed. The fit of the new model would then be compared to that of the old model through comparison of chi square values, taking into account the difference in degrees of freedom. In this comparative example the older model is said to be nested in the newer model. Using the LISREL approach, post hoc analyses always consist of the specification of a series of nested models in

which one parameter at a time is respecified as free. In LISREL, identification of a misspecified parameter is made possible through the provision of modification indices (MI's) provided by the programme. For each constrained parameter in the previously specified model, the MI provides the expected change in chi square value if the parameter were to be freed. Thus, freeing the parameter with the largest MI should result in the greatest overall improvement in fit of the model.

It is, of course, necessary for the researcher to make the decision about freeing any particular parameter on the basis of the substantive and theoretical meaningfulness of such a specification change. For instance, in our example above, suppose that the MI produced by the LISREL programme indicates that the largest drop in chi-square would derive from the respecification of λ_{12} as a free parameter. This parameter represents the relation of x_1 to ξ_2. Additionally, suppose that the researcher has reason to believe that x_1 may be related to ξ_2 in addition to ξ_1 (perhaps for theoretical reasons or perhaps because the researcher has found this relation to hold in previous research). Given that the estimation of this parameter is justified theoretically, the researcher could then decide to free that parameter, thus, allowing x_1 to crossload onto the second factor, ξ_2. The difference between the chi square value associated with the new model and the old model is then computed. The statistical significance of this chi square

difference value (Δ) can be tested because $\Delta\chi^2$ is distributed as a χ^2 statistic, with degrees of freedom equal to the difference in degrees of freedom between the two models. Thus, in this case, if the difference in χ^2 is greater than 3.84 it would be considered statistically significant at the .05 probability level. This means that the fit of the new model is significantly better than that of the old model.[2]

The researcher may proceed through a series of respecification and reestimation of such nested models, resulting in a final model that fits the data significantly better than the original model. At some point, determined by statistical and theoretical criteria, this respecification process will stop. The researcher must then determine which of the respecified models is most meaningful, yet parsimonious, in adequately representing the data. The resultant model is called the baseline model. The final model and baseline model can then be compared through conduction of a sensitivity analysis (see Byrne, 1989). This procedure involves the correlation of major parameters (λs and ϕs) between the baseline and final CFA models. If the correlation coefficient is high (>0.90) then the

[2]The reader should note that this example is presented purely to illustrate the concept and process of model respecification. In actuality, freeing an extra parameter in this particular model would lead to a problem in that the model would be just-identified. This means that the value of all population parameters to be estimated in the model could be determined exactly from the values of the constrained parameters, thus, resulting in a model that could not be tested (Bollen, 1989).

differences between the two models may be trivial, i.e. the additional parameters are redundant and do not add any interesting information to the model. In this case, for reasons of scientific parsimony, the researcher would choose to accept the simpler model, i.e., the model with fewer free parameters. Byrne (1989) cautions that this type of sensitivity analysis should only be used as a general guide, and never as the definitive criterion for acceptance or deletion of any parameter in post hoc model fitting. The model finally determined to be best must be defensible on substantive and theoretical grounds.

Statistical Analyses of the Thesis Data

Measurement of Latent Variables: Self-Concept

Each latent variable in the hypothesized five-factor model was measured by four indicator variables, two of which were formed from the SDQI and two from the SPPC. Indicator variables, in turn, were formed from item pairs (in the case of the SDQI) or item triads (in the case of the SPPC). This procedure, that is, the use of pairs or triads rather than individual items, affords greater assurance of reliability of variables and generalizability of results and is the procedure consistently employed by Marsh throughout his work with the SDQ instruments (Marsh, 1984).

In the case of the SDQI, only four of six items in each SDQI subscale were collected. This was necessary in order to meet time constraints in collection of data from young children in a school setting (data collection consisted of two 45 minute sessions and school officials were not willing to have sessions prolonged). The four items selected were those with the highest reliability of the group. This was considered an acceptable solution to the problem of time constraint, given the large body of empirical validation of the SDQI.

In the case of the SPPC, however, it was decided that the instrument was less well-validated than the SDQI and that, therefore, all items should be used. In order to make the same number of indicators per latent variable from each instrument (i.e., two from the SDQI and two from the SPPC) the six items of each SPPC subscale were combined as triads.

Further details for each instrument separately are explained below:

Self-Description Questionnaire I. Each factor, or latent variable, measured by the SDQI was specified as having two indicator variables. Each indicator, in turn, was composed of two items. Accordingly, the items were paired alternately, rather than consecutively, in order to account for any possible effect of order of presentation. Thus, the first observed variable was comprised of Items 1 and 3 of any given subscale, and the second observed variable was comprised of Items 2 and 4.

For a complete list of observed variables and their constituent items see Appendix D.

Self-Perception Profile for Children. Each latent variable measured by the SPPC was specified as having two indicator variables. Each indicator variable was composed of three items. The triads were formed from alternately presented items of each respective subscale. Thus, the first indicator variable was comprised of Items 1, 3, and 5 of any given subscale, and the second observed variable was comprised of Items 2, 4, and 6 of the subscale. For a complete list of indicator variables and their constituent items see Appendix D.

Measurement of Latent Variables: Social Behaviour with Classmates

The child's social behaviour with peers formed a single latent variable, Social Behaviour with Classmates (SBC). This latent variable was represented by three indicators. The first and second indicators were comprised of single items from the TRS. The third indicator was comprised of the Sociability subscale of the RCP (RCPSC). For a complete list of indicator variables and their constituent items see Appendix D.

Measurement of Latent Variables (Social Behaviour with Teachers)

The child's social behaviour with teachers formed a single latent variable, Social Behaviour with Teachers (SBT). This latent variable was represented by two indicators comprised of

single items from the TRS. For a complete list of indicator variables see Appendix D.

Specification and Testing of Hypothesized Models

The sections below outline the models proposed in the thesis and the methodology used to test those models.

Hypothesis I. A series of nested CFA models were used to test the hypothesis that social self-concept is a multidimensional structure. Specifically, consistent with the Shavelson model of self-concept structure, a five-factor model that specifies four facets of social self-concept, plus general self-concept, was proposed; the social self-concept facets were: social self-concept in general, social self-concept at school, social self-concept in regard to classmates, and social self-concept in regard to teachers. This model (Model 1) was tested against the counterhypotheses that the data could be more optimally represented by 3-dimensional (Model 2; general self-concept, general social self-concept, and a third factor comprised of all aspects of social self-concept at school, including peers and teachers), 2-dimensional (Model 3; general self-concept and social self-concept), or unidimensional (Model 4; comprising only GSC) self-concept structure. Figures 4 through 7 illustrate, respectively, the models tested. Details of the indicators comprising the factors in each model are

located in Appendix E.

Insert Figures 4 to 7 about here

Hypothesis II. The second hypothesis argues for a social self-concept structure that is hierarchically structured with general self-concept at the apex, descending to general social self-concept, and then descending again to subareas of social self-concept specific to the school environment. The hypothesis was not tested, for reasons that will be explained in the Results section of this thesis. What follows below is a description of how the hypothesis was proposed to be tested. This section, therefore, is written in the future tense.

The model used in testing this hypothesis will represent the final best-fitting model determined in the testing of Hypothesis I. Correlations between the latent variables of this model, then, will be examined in order to determine the hierarchical structure of social self-concept.

Hypothesis III. The hypothesis that social self-concept is a construct that can be differentiated from social behaviour, as evaluated by teachers and by peers, was evaluated in two ways. The first approach was to examine correlations between the latent variables of the final best-fitting model determined in

Hypothesis I, and the latent variables representing social behaviour with teachers (SBT) and social behaviour with classmates (SBC). In order to determine these correlations a new model was examined in which these two additional latent variables (SBT and SBC) were added to the best-fitting self-concept model of Hypothesis I. Low correlations between the child's self-concept and the perceptions of others would indicate support for the hypothesis that self-concept and social behaviour are separate constructs which can be differentiated from each other.

In a related, but more stringent, analysis the correlations between the relevant self-concept latent variables and the social behaviour latent variable (i.e., (1) between social self-concept regarding teachers and social behaviour with teachers, and (2) between social self-concept regarding classmates and social behaviour with classmates) were fixed to 0.0. The difference in χ^2 between this result and the result of the first analysis (i.e., in which the values of the correlations were not constrained to be 0.0 but were instead, freely estimated) were then examined. A non-significant χ^2 would indicate strong support for the hypothesis that the latent variables in question represent differentiable constructs.

Hypothesis IV. In order to test the hypothesis that social self-concept structure is stable over time, the best-fitting model determined at time 1 was tested on the second time-point data. Four separate, and progressively more stringent, analyses

were used to test this hypothesis, as follows:

1) The difference in χ_2 was computed between the solutions at time 1 and time 2. These χ^2 values were compared, but not tested statistically because there were no difference in degrees of freedom between the two samples.

2) In a second analysis, parameters in the factor loading matrix were constrained equal to the ML estimates of the time 1 data and this more restricted model was tested on the time 2 data. 3) Third, the factor loading matrix and the latent variable variance-covariance matrix were constrained equal to the ML estimates of the time 1 data and, again, this model was tested on the time 2 data.

4) Finally, all parameters (i.e., the factor loading matrix, the latent variable variance-covariance matrix and the error variance-covariance matrix) were constrained equal to the ML estimates in the time 1 data and, again, this most precisely specified model was tested on the time 2 data.

In all four analyses the time 1 data were restricted to those cases which were also included in the time 2 data. That is, any case which was no longer included in the time 2 data because of partial or completely missing data (e.g., the child was absent on the day of testing) was also excluded from the time 1 data and the χ^2 value for time 1 was based on that smaller sample.

Method

Results

Data Screening

Time 1. Prior to the analyses, the data were screened for accuracy of entry, missing values and violation of univariate and multivariate normality. All values were found to range between expected minimum and maximum limits. Means and standard deviations of all items were found to be theoretically plausible.

In an initial sample of 231 cases, four cases were found to have more than 10% missing data. These cases were eliminated from the analysis, leaving a sample of 227 cases. All items were found to have less than 3% missing data and the pattern of missing data was determined to be random (see Muthen and Kaplan, 1985). The item mean was then substituted for all remaining missing values.

Kurtosis values for all indicators ranged from -0.621 to 1.576 (M=0.013). Skewness values ranged from -1.471 to -0.120 (M=-0.681). There were no multivariate or univariate outliers. Thus, with all skewness and kurtosis values within a reasonable range and no extreme values given the sample size, the assumption of normality was considered to be adequately met.

Time 2. The Time 2 data were screened according to the same criteria as the Time 1 data. All raw data values were found to range between expected minimum and maximum limits, with means and standard deviations falling within the numerically plausible

range.

Of the 227 cases included in the Time 1 analysis, 17 subjects were not present at the second time point sessions. One additional case was eliminated due to greater than 10% missing data. This resulted in a sample of 209 cases for the Time 2 analyses. All items were found to have less than 3% missing data, with the exception of SDQI13 which had 3.3% missing data. The item mean was, therefore, substituted for all remaining missing values.

Kurtosis values for all indicators ranged from -0.21 to 1.33 (M = 0.518). Skewness values ranged from -1.24 to -0.52 (M = -0.947). There were no multivariate or univariate outliers. Thus, as with the Time 1 data, the assumption of normality was considered to be adequately met.

Hypothesis I

The hypothesis that the data could best be described by a five-factor model (Model 1) was not supported. The fit of the data to the model was poor and resulted in a Phi Matrix that was not positive definite. Such a matrix indicates that the solution is not reliable and, as such, the chi square statistic cannot be interpreted (Wothke, 1993). Fit indices are, therefore, not presented for such a solution. Technical causes of the situation were ruled out leaving only the conclusion that the model was misspecified (Bollen, 1993; Joreskog & Sorbom, 1989).

Similarly, the three-factor model (Model 2) resulted in another Phi Matrix that was not positive definite, indicating that it too was a misspecified model.

The two-factor model (Model 3) did allow an admissible solution but provided a very poor fit to the data. The lack of adequate fit is evidenced by the low AGFI and CFI values (AGFI = 0.576; CFI = 0.715). The one-factor model (Model 4) also yielded an admissible solution but, again, the fit to the data was very poor (AGFI = 0.581; CFI = 0.708). The ECVI's for the two-factor (ECVI = 4.285) and one-factor (ECVI = 4.217) models were very similar with the one-factor model being marginally better than the two-factor model according to this indicator. These results are summarized in Table 1. Only those models resulting in admissible solutions are listed.

Insert Table 1 about here

Due to the poor fit of all models tested, analysis was then moved to an exploratory phase in order to determine a better fitting model to the data. During this initial exploratory phase four more models were tested. Of all models tested, only one was discovered in which the Phi Matrix was positive definite (i.e., only one model resulted in a solution that was admissible). This

model (Model 5) consisted of a general self-concept factor (ξ_1), a second factor comprising social self-concept in general and social self-concept in relation to both classmates and school (ξ_2), and a third factor comprising social self-concept in relation to teachers (ξ_3). Model 5 is illustrated in Figure 8. Details of the indicators comprising each factor are located in Appendix E. This model was subsequently modified to allow for cross loadings of indicator variables onto factors, and correlations between the error terms, representing only items from the same measuring instrument. Although these modifications did improve the model fit somewhat, the fit was still poor ($\chi^2 = 835.24_{167}$). Non-statistical indices corroborated the inadequacy of the fit (AGFI = 0.578, CFI = 0.729, ECVI = 4.076).

Insert Figure 8 about here

The surprising inadequacy of all tested models led to a decision to examine this problem at the level of the indicators. This examination revealed consistently low squared multiple correlations (R^2) for all SPPC indicators. The R^2 is an indication of the reliability of each indicator with respect to its underlying latent construct (Byrne, 1989). The low R^2 values for the SPPC, thus, indicate extremely low reliability for the

items forming those indicators. This problem with the SPPC has been noted previously by Marsh (1986; 1989) According to Marsh the problem is due to the difficulty that young children have in responding to negatively worded items and the difficulty they have in responding to what he refers to as the "idiosyncratic response scale" of the SPPC. Whether or not the low reliabilities of the SPPC items were due to the causes proposed by Marsh, it was clear that those items constituted an insurmountable problem with this data set.

It was decided, therefore, to remove the SPPC items from the analysis of the first hypothesis. Thus, the 20 items of the SDQI formed 20 one-item indicators, with four indicators per factor in the five-factor model. All models were then retested using the SDQI items only. Appendix F outlines the models tested.

The deletion of the SPPC instrument from the analysis did improve the fit of the models to the data. These results are summarized in Table 2. The best-fitting model was again found to be the same three-factor model as found in the first series of tests. Comparison of Model 5 in Table 1 and Table 2 shows that the original χ^2 value ($\chi^2 = 835.24_{167}$) decreased considerably when the SPPC items were removed from the model ($\chi^2 = 431.22_{167}$). However, even this improvement was insufficient to be considered an adequate fit.

Results

Insert Table 2 about here

Because an adequately fitting solution had not been found, an exploratory factor analysis was conducted in order to investigate alternative factor structures. This investigation was intended to discover whether some factor other than those the instrument was designed to measure might emerge from the children's response patterns. Maximum likelihood extraction using oblique rotation was conducted for five-, four-, three- and two-factor solutions. The factor pattern matrices for each of these solutions are found in Appendix G.

Examination of the five-, four-, and three-factor solutions reveals the presence of a factor that was not accounted for in any of the models tested. This factor was comprised of Items 26, 24, 28 and 31. These were the items that tapped the child's self-perception concerning popularity in the areas of general social self-concept, and social self-concept related to school, peers, and teachers. For example, Item 26, "I am popular with kids my own age at school", was intended to tap social self-concept at school. Similarly, Item 31: "I am popular with the teachers", was intended to tap social self-concept with teachers. These four items, drawn from four different factors in the original five factor model, were the only items in which the

word "popular" appeared. Apparently the children responded in a consistent manner whenever this word appeared, no matter what else the item asked. Examination of Appendix G shows that the factor can be seen most clearly in the five-factor solution. In this solution Item 31 also loads on another factor. These are the items related to teachers. In the four-factor solution Item 31 does not meet the criterion selected for loading (i.e. .35), however, the loading was -.34203. The same is true of the three factor solution, in which the loading of item 31 was -.32960.

On the basis of this new finding three more models were tested using CFA procedures. These models are illustrated in Figures 9 through 11. The first model (Model 6) was a three-factor model with the first factor comprising general self-concept and self-concept of popularity (ξ_1), the second factor comprising social self-concept in general, in regard to school and in regard to classmates (ξ_2), and the third factor comprising social self-concept in regard to teachers (ξ_3). The second model (Model 7) was a four-factor model with general self-concept as the first factor (ξ_1), self-concept of popularity as the second factor (ξ_2), social self-concept in general and in regard to school and classmates as the third factor (ξ_3), and social self-concept in regard to teachers as the fourth factor (ξ_4). The third model (model 8) was a six-factor model comprising general self-concept (ξ_1), general social self-concept (ξ_2), social self-concept regarding school (ξ_3), social self-concept regarding

classmates (ξ_4), social self-concept regarding teachers (ξ_5), and self-concept of popularity (ξ_6). Appendix H contains the details of the items forming each factor in the three different models.

Insert Figures 9 to 11 about here

Of the three models tested the best fit was found to be the four-factor model (Model 7), as can be seen by reviewing the results in Table 3. The overall goodness of fit of the model as measured by $\chi^2=340.07_{164}$, indicates that this model provides a better fit to the data than any of the others tested. Subjective indices (AGFI = 0.827; CFI = 0.910; ECVI = 1.912) also identify this as the best-fitting model.

Insert Table 3 about here

This model (Model 7) was subsequently modified in order to allow for correlated errors between the indicators. Modification indices were used as a guideline for the procedure, resulting in a series of three nested models. However, the Pearson correlation between the initial analysis and the final analysis

revealed no significant change to the model (r =0.99). Therefore, for reasons of parsimony, the initial model (Model 7) was considered to represent the data most optimally. The fitted model, including all factor loadings (λ's), latent variable correlations (ϕ's), and error terms (Θ_δ's), is presented in Figure 12.

Insert Figure 12 about here

To summarize, the initially hypothesized model was found to be a poor fit to the sample data, as were the counterhypothesized models. Of all models tested, the best-fitting model of social self-concept was found to be a four-factor model with general self-concept as the first factor, self-concept of popularity as the second factor, social self-concept in general and in regard to school and classmates as the third factor, and social self-concept in regard to teachers as the fourth factor. This model was, therefore, accepted as the best model available to explain these data and was the model which was adopted as the basis for all subsequent hypotheses.

Hypothesis II

The hypothesis that social self-concept is hierarchically

structured was not testable due to the results of Hypothesis I. That is, the hypothesized model did not prove to be a good fit to the data. It was found, instead, that several of the aspects of social self-concept which had been hypothesized as separate and hierarchically ordered factors, were undifferentiated in this sample and formed a common factor comprising social self-concept in general, social self-concept at school, and social self-concept with classmates.

Hypothesis III

The hypothesis that social self-concept and social behaviour are separate constructs was partially supported. The results of the first analysis are summarized in Table 4.

Insert Table 4 about here

Correlations between social behaviour with teachers and the three aspects of social self-concept range from r = 0.114 to r = 0.173. In particular, the correlation between social behaviour with teachers and social self-concept regarding teachers (r = 0.173) indicates that 3% of the variance in each latent variable is accounted for by the other. Thus, there was low correlation between social behaviour with teachers and the child's own social

self-concept regarding teachers.

Correlations between social behaviour with classmates and the three aspects of social self-concept ranged from r = 0.313 to r = 0.427. In particular, the correlation between social behaviour with classmates and the latent variable which includes social self-concept regarding classmates (r = 0.359) indicates that approximately 13% of the variance in each latent variable is accounted for by the other. Thus, there was moderate correlation between social behaviour with classmates and social self-concept regarding classmates. The correlation between self-concept of popularity and social behaviour with classmates was the highest of the three (r = 0.427), indicating 18% shared variance between the two latent variables. The second analysis fixed the correlations between the relevant latent variables to 0.0 (i.e., between social self-concept regarding teachers and social behaviour with teachers, and between social self-concept regarding classmates and social behaviour with classmates). The differences in χ^2 between these models and the models in the first analyses were then compared. Results of this analysis are summarized in Table 5. For social behaviour with teachers and social self-concept regarding teachers the difference in χ^2 ($\Delta\chi^2_1$ = 4.44) is significant at p = .05. Thus, we can conclude that the estimated correlation between the two latent variables is significantly different from a correlation of r = 0.0. For social behaviour with classmates and social self-concept

regarding classmates the difference in χ^2 ($\Delta\chi^2_1$ = 16.0) is statistically significant at p = .05. Thus, we can conclude that the estimated correlation between these two latent variables is significantly different from a correlation of r = 0.0.

The results of the first and second analyses, when taken together, indicate that (1) the correlation between social behaviour with teachers and social-self concept regarding teachers is statistically significant but has little, if any, practical significance, and (2) the correlation between social behaviour with classmates and social self-concept regarding classmates has significance both statistically and practically.

Insert Table 5 about here

Hypothesis Four

The hypothesis that social self-concept is stable across time was not supported. Results of the analyses are summarized in Table 6. The difference in χ^2 between the first and second time points was 66.18. Note that there is no change in degrees of freedom between the two models, therefore, the difference can be evaluated subjectively only.

Non-statistical criteria, the CFI and ECVI, indicate that the Time 1 data provide a superior fit over the Time 2 data. At

Time 1 the CFI = 0.910, whereas at Time 2 the CFI = 0.889, indicating a better fit at Time 1. Similarly, at Time 1 the ECVI = 1.998, and at Time 2 the ECVI = 2.316, again indicating a better fit for the Time 1 data.

Insert Table 6 about here

When the model was specified with estimated values from Time 1 fixed a priori at Time 2, the fit continued to worsen. It can be seen from the comparisons summarized in Table 6 that with each subsequent constraint the fit of the data to the model becomes less adequate. The χ^2 values are not directly comparable here because of the difference in degrees of freedom. Therefore, the indices of interest are the ECVI, CFI, and AGFI. It is apparent from comparing these ratios in Table 6 that the three constrained models do not provide as good a fit as the first model, with the most stringent model providing the least good fit.

Given that the model being tested on the Time 2 data was empirically derived from the Time 1 data, it is to be expected that the Time 2 data would not fit the model as well as the Time 1 data. In addition to this methodological consideration, however, it is possible that the structure of social self-concept had, indeed, changed over the time between administrations.

Results

These issues, and their implications, are discussed further below.

Discussion

Hypothesis I

The hypothesized five-factor structure of social self-concept at school was not supported. The counterhypothesized models were also found to provide a poor fit to the data. Instead, the best-fitting model tested was found to be a four-factor model with general self-concept as the first factor, self-concept of popularity as the second factor, social self-concept in general and in regard to school and classmates as the third factor, and social self-concept in regard to teachers as the fourth factor. Thus, social SC was found to have a multidimensional structure, and this is consistent with the predictions of the original Shavelson model, but the details of that multidimensional structure were found to differ from those proposed by Byrne (1990).

In particular, it was found that social self-concept is relatively undifferentiated in children of this age. They do not distinguish between social self-concept in general, social self-concept at school, and social self-concept regarding classmates. Instead, there is a single undifferentiated factor encompassing all these areas. This is consistent with results of Marsh, Barnes, Cairns, and Tidman (1984), in which it was found that facets of self-concept were more highly correlated with each

other in grade 2 and grade 3 than in grade 4 and grade 5, indicating that self-concept is more undifferentiated at earlier grade levels. Apparently, social self-concept is also more undifferentiated at this age level. Whether or not the facets of social self-concept would become more differentiated in grade 4 or grade 5 was not tested in this study and must, therefore, remain speculative at this time.

Although grade 3 children do not distinguish between some of the hypothesized facets of social self-concept, they do distinguish relations with teachers from these other aspects of social self-concept. Apparently, they are able to distinguish at this age that their own interpersonal behaviour with teachers differs from their behaviour with others. Whether this difference is due to the fact that the teachers are adults, or authority figures, or to some other difference between teachers and classmates is not clear at this time.

Probably the most striking finding of the study is the apparent salience of popularity to the child's conception of his or her own social relations. The data indicate that when children see themselves as popular they see this across social roles at school. That is, they see themselves as popular with classmates, other schoolmates, and with teachers. Conversely, a child who sees himself or herself as unpopular with other children will, according to these data, also see himself or

herself as unpopular with teachers. They do not, at this age, discriminate their popularity with other children from their popularity with teachers.

This may indicate a departure from the distinction that they make between teachers and others in other areas of social interaction. Children do see interactions with teachers differently from interactions with others at school. Therefore, the inclusion of teachers in their assessment of their own popularity cannot simply be explained as a developmental phenomenon in which the aspects of social self-concept are not yet fully differentiated. It may be that the concept of popularity as a cognitive schema is beginning to strongly emerge in children of this age and that, as a consequence, this concept takes precedence in their awareness over other competing concepts, such as the distinction between social self-concept regarding teachers and with others at school.

The importance of popularity to the child's social self-concept is also interesting because, of all aspects of social self-concept, it is popularity that is most readily identifiable as an evaluative dimension. Evaluation and comparison are integral components of the concept of popularity. It may be that children are assessing themselves socially using the yardstick of perceived popularity. This is consistent with James' (1890) contention that the role of social self-concept is fundamentally

an evaluative one.

It must be reiterated, however, that these conclusions are made on the basis of post hoc, exploratory, analyses. As such, the reader is cautioned that all conclusions are tentative and speculative. The contribution, if any, of popularity to the child's social self-concept must be determined through further research.

Hypothesis II

The hypothesis that social self-concept at school is hierarchically structured was not testable within the limitations of the present data. It may be that at this age there is not an hierarchical structure to social self-concept or it may be that there is an hierarchical structure but that structure was not able to be revealed through the present study.

For instance, it may be that social self-concept is situated within a larger hierarchical structure of self-concept. In order to locate social self-concept in relation to the other facets of self-concept it would be necessary to test a larger model, including general self-concept, academic self-concept, social self-concept, physical self-concept, and whatever other aspects of self-concept were readily testable. Further, it would be necessary to test a broader range of social self-concept than merely social self-concept at school, such as social self-concept

regarding relations with family members and social self-concept in any other areas of importance to the child (e.g., neighbourhood playmates, extended family, Cubs or Brownies, church school, and so on). Then it would be possible to see a fuller picture of the child's social self-concept and, perhaps, that more complete social self-concept would, indeed, be hierarchically structured. This, of course, must remain speculative at this time. It was not within the scope of the present study to clarify these issues.

Hypothesis III

The hypothesis that social self-concept and social behaviour are separate constructs was partially supported. First, it was found that social self-concept regarding teachers and social behaviour with teachers were correlated at a level that was statistically significant, but that had no practical significance. Thus, social behaviour with teachers (as measured by teacher ratings), and the child's social self-concept regarding teachers are clearly separate constructs. When children and teachers each evaluate the child's role in their mutual interactions, those evaluations are very different.

This may mean that children and teachers are recalling different instances of behaviour when they form their evaluations. Or, they may be recalling the same instances but

interpreting the events differently, based on their own experience of the events as they occurred. In either case, it is clear from the near-zero correlation between the sets of responses that these are two separate and distinct constructs. Clearly, Cooley's conception of the "looking-glass self" is inadequate to explain this finding. It seems that, rather than formulating their own self-concept from the reflected appraisals of their teachers, the children are either unaware of or unconcerned with those appraisals when forming impressions of their own behaviour.

The correlation between social behaviour with classmates and social self-concept regarding classmates was found to be significant, falling within the moderate range. Thus, the distinction between self-concept and others' appraisal of the child's behaviour is not as clear for interactions with peers as it is for interactions with teachers. This may indicate that the child and others are recalling the same behaviours, each from their own perspective. The correlation accounts for only 13% of the variance between the two latent variables. Thus, although the constructs are significantly correlated, assessment of self-concept is clearly not a redundant procedure after sociometric assessment and teacher assessment of behaviour is completed.

Hypothesis IV

The hypothesis that social self-concept is stable across time was not supported. This finding can be interpreted in a number of different ways. First, it may indicate that the measures of social self-concept used are not reliable. This, of course, is the interpretation usually made when results of administering an instrument differ over time.

However, a second possible interpretation is that social self-concept itself is not stable over a six-month time period in children of this age. Harter (1988) points out that changes in self-concept due to development can be confounded with issues related to reliability of instruments. The difference between Time 1 and Time 2 results in the present data may be due to development of social self-concept in the children over the course of the school year. Indeed, social self-concept may be in a particular state of flux in the middle childhood years as the influence of the peer group becomes more important in the life of the child (Hartup, Brady, & Newcomb, 1983).

A third, methodological, explanation of the results must also be considered. The best-fitting model being tested at Time 2 was derived empirically from the Time 1 data. As such, it is logically and mathematically to be expected that the Time 1 data will provide a better fit to the model than the Time 2 data (Browne & Cudeck, 1993). It is not clear, therefore, how much of

the change between Time 1 and Time 2 is due to real changes in self-concept and how much is due to this expected decrement of fit. The hypothesis tested here looks only at the adequacy of fit of one model and does not address the question of whether any other model would have provided a better fit. The same four-factor model that provided the best fit at Time 1 may also have fit the Time 2 data better than any competing model, despite the difference found between Time 1 and Time 2. The true development of social self-concept structure over the six month period has, therefore, undoubtedly been at least somewhat masked by this methodological problem. Until such time as the model is retested on a new sample no firm conclusions regarding this issue can be made.

Limitations of the Study

As is typical of most psychological research, the present study had several limitations. First, a methodological limitation of the study involves the use of the RCP. This instrument is intended to be administered twice (Masten & Morison, 1981), once using the names of the boys in the class, and the second time using the names of the girls. This procedure is intended to control for observed sex biases in children's responding (Daniels-Beirness, 1989). In the present study the original intent was to follow Masten's guidelines. However, in

the early stages of data collection it became clear that this was not feasible. The difficulty lay in the area of obtaining consent. The instrument is designed with the assumption that all members of a class will be participating. However, in this study there were sometimes only a handful of participants (the mean number of participants per class was 12.1; the smallest number, per class, was four). Only those children participating in the study were available to be identified for all the roles. For instance, in the class with four students participating, there were three girls and one boy. In this class the four participants were forced to select all the roles in the RCP from the three children other than themselves participating. If the sexes had been separated and the instrument administered twice this would have meant that, necessarily, participants had to nominate that one boy for every role, or nominate no one at all, obviously invalidating the results. Even to have to choose from among only three students of both sexes brings the validity of the instrument into question, but to limit the choice even further was deemed to be completely unworkable. Thus, for two reasons, the use of this instrument in the study was less than optimal, namely, (1) the administration of the instrument to both sexes simultaneously and, (2) the small number of children some classes had to choose from. Unfortunately, it is not known how the results of the study might have differed if the instrument

could have been administered to the whole class. Furthermore, selection of another sociometric instrument would not have alleviated the problem because for any instrument chosen the children would still be forced to make their choices from among the participants.

A second methodological limitation of the study concerns sample size. Although the present sample does exceed the minimum recommended for analysis of covariance structures (Boomsma,1982), often researchers in this area utilize samples that are much larger (e.g., Bentler, 1987; Byrne, Baron & Campbell, 1993; Byrne & Shavelson, 1986). It is possible that with a larger sample a clearer picture of the structure of social self-concept may have emerged.

A third limitation of this study is in the generalizability of results. This study looked at only social self-concept at school, and, further, only children in the same class were used as peer raters. Without doubt, the social life of most children is much broader in range than what is reflected in this study. For instance, Hartup (1983) reported that more than 50% of children's interactions with other children involve individuals who differ in age by more than 12 months. Hartup went on to caution that a false picture of children's interrelations could result from the practice of researchers collecting data from classroom-blocks of subjects for purposes of their own

convenience.

The SDQI, in particular, sampled a very limited content domain, focusing largely on academically-oriented social self-concept. It may be that this problem contributed to the lack of a well-differentiated factor structure for the construct. That is, the problem of lack of differentiation of the multidimensional structure may have been directly related to the instrumentation used in the study.

As mentioned above, a complete analysis of a child's social self-concept and social behaviour would extend far beyond the walls of the elementary school classroom. For instance, we can conclude that children differentiate between their social relations with other children and with teachers, but how does this relate to other children and adults in general? Within the neighbourhood, do children have different expectations of their own social competence with their friends than with their friends' parents? Perhaps the difference between classmates and teachers is a difference having to do with power and authority, and not with age. Perhaps, that is, the children will include other adults whom they do not see as authority figures, such as neighbourhood parents, into their schema of social relations with peers, but make a distinction between relations with their hockey coach and their team members.

A related question is, can a child of this age view himself

or herself as unpopular at school but popular at Brownies or Cubs? We have seen that popularity forms a single factor in these data, but would this unity of perception hold beyond the boundaries of the school? It may be that, borrowing from Marsh's Internal/External Frame of Reference model, a child with only one or two friends at school sees himself or herself as popular because she has no friends in her neighbourhood. Or, conversely, are children of this age incapable of making that level of distinction about their own social functioning? Without investigating social self-concept in its entirety, this sort of question remains unanswered.

If one is interested in measuring self-concept only as it relates to experiences at school then this study is relevant. But if the intent is to map the structure of social self-concept, then this study has filled in only a piece of the puzzle. That is, the study makes a practical contribution, because often the area of social concern typically involves school-related issues, but the scientific contribution is incomplete in that the study cannot claim to have provided a full view of social self-concept in the child.

A fourth limitation of the study is that it did not investigate any possible gender differences in social self-concept structure. Instead, boys and girls were combined into a single group. This was necessary given the constraints of sample

size but it is possible that the structure of social self-concept is not the same for both genders. For instance, Byrne and Shavelson (1987) demonstrated that in the case of academic self-concept there are, indeed, gender-related differences in structure. If social self-concept also differs between boys and girls then combining the groups is not a sound procedure as it may mask some aspects of the structure as it would have emerged for each group. Unfortunately it was not within the scope of this research to address this important issue.

A fifth limitation of the study is that because of its exploratory nature all conclusions must remain tentative. The final best-fitting model was empirically derived from the sample data. This is an almost inevitable result of CFA procedures in which post hoc analyses almost invariably are conducted. Of particular concern is the finding that the best-fitting model did not fit the time 2 data as well as the time 1 data. As such, it is necessary to retest the derived model on a new sample before conclusions can become more than tentative.

A sixth, psychometric, limitation of the study involves the measures of social behaviour employed. Specifically, the teacher and peer ratings were intended as measures of social behaviour, and these measures were intended to be analogous to the measures of academic achievement used in studies of academic self-concept (e.g, Byrne, 1986). In those studies the question of interest is

the relation between academic self-concept and actual behaviours as measured by the subject's actual academic achievement. Similarly, in this study the intent was to investigate the relation between the child's social self-concept and actual behaviours. The actual social behaviours were to be measured by the peer and teacher ratings. However, as Ledingham and Younger (1985) have argued, the teacher and peer ratings are not objective measures of actual behaviour. They are impressions of the child's behaviour, and are undoubtedly as biased as the child's self-perceptions. This would not be a limitation if the intent of using the measures were to contrast one biased view with another (i.e., self-observations versus observations of others). In this capacity, the measures have added useful information to the results of the study. However, it must be emphasized that this study has not been able to examine the relations between social self-concept and actual social behaviours in the way that other studies have examined relations between academic self-concept and academic achievement.

Directions for Future Research

The first research to follow from this study must be a replication of the results using a new sample. Specifically, the 4-factor model of social self-concept must be demonstrated to be a viable model before any further research can meaningfully

proceed. This is especially critical because the Time 2 data were not found to fit the model as well as the Time 1 data.

The following recommendations apply to the collection of the replication sample. First, in order to maximize the meaningfulness of the sociometric measure, data should be collected only in classes where at least some criterion percentage (e.g., 75%) of the students in the class will be participating in the study. Second, in addition to peer and teacher ratings, social behaviour should be assessed by direct observation in the classroom and playground. Although this procedure will add considerably to the expense of the study and to the time necessary for data collection, it will provide the best available assessment of the child's actual social behaviour. Without an objective measure of social behaviour the measurement of social self-concept becomes much less interesting. Third, in order to minimize the time necessary for administration, the SPPC should not be administered as it did not prove to be a useful instrument in this study.

Beyond the replication study there are other interesting avenues of research that follow from the present study. First, if the replication study finds the model to hold, it would be important to investigate the development of social self-concept in older children. It will be important to propose a model of how social self-concept changes as the child develops cognitively

and gains wider experience socially. Of particular interest is the dimension of popularity. Popularity becomes even more important to children as they grow older. A social self-concept instrument that taps this important facet will be able to investigate the relations between self-concept and other variables such as affect and social acceptance.

Second, the relation between social self-concept and physical self-concept should be further investigated. Delugach, Bracken, Bracken, and Schicke (1992) reported a high correlation between measures of social self-concept and physical self-concept. They concluded that these two domains are not clearly distinct. A self-concept instrument that taps areas of importance to the child at school should be able to add to our knowledge of the relations between these two variables.

Third, the issue of gender differences in social self-concept must be investigated. If social self-concept is found to be invariant for male and female children then it will be justified to continue to treat the two groups as one. If, however, it is found that there are structural differences between the two groups, this finding may indicate some important ways in which males and females see themselves differently regarding their social interactions at school.

Fourth, the relative importance, or weighting, of each factor in the model remains to be determined. For instance, it

may be that children are not as concerned about their social self interactions with teachers as they are about their social interactions with other children. It may be possible to reflect this relative difference in a model of social self-concept that allows for differentially weighted factors.

Conclusions

This study has contributed to existing knowledge of the structure of social self-concept for preadolescent children at school. Specifically, a four-factor model of social self-concept at school was proposed. The facets of this model were (1) general self-concept, (2) social self-concept in general, at school, and with classmates, (3) self-concept of popularity, and (4) social self-concept regarding teachers. The study has demonstrated that children consider popularity to be a component of their social self-concept. Children who see themselves as popular (or as unpopular) at school, see themselves in this way across roles, with classmates, with other schoolmates, and with teachers. Furthermore, the study has demonstrated that children's social self-concept is not at all related to teacher's perceptions of the children's behaviour with teachers. Children's social self-concept is, however, related to peer and teacher perceptions of their actual social behaviour with peers.

The study has been able to illustrate several ways in which

research in this area can be advanced, including the benefit of obtaining direct observations of actual social behaviour, and using only classes where the majority of the students will be participating in the study.

References

Beck, A. T. (1967). Depression: Clinical, experimental, and theoretical aspects. New York: Harper & Row.

Bentler, P. M. (1987). Drug use and personality in adolescence and young adulthood: Structural models with nonnormal variables. Child Development, 58, 65-79.

Bentler, P. M. (1990). Fit indexes, Lagrange multipliers, constraint changes and incomplete data in structural models. Multivariate Behavioral Research, 25, 163-172.

Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman, (Eds.), Measures of personality and social psychological attitudes (pp. 115-160). San Diego: Academic.

Bollen, K. A. (1989). Structural equations with latent variables. New York: John Wiley & Sons.

Bollen, K. A., & Long, J. S. (Ed.). (1993). Testing structural equation models. Newbury Park, CA: Sage.

Boomsma, A. (1982). The robustness of LISREL against small sample sizes in factor analysis models. In K. G. Joreskog and H. Wold, (Eds.), Systems under indirect observation: Part I. (pp. 149-173). Amsterdam: North-Holland.

Bracken, B. A. (1992). Multidimensional Self Concept Scale. Austin, TX: Pro-ed.

Bracken, B. A., and Howell, K. K. (1991). Multidimensional self

concept validation: A three-instrument investigation. Journal of Psychoeducational Assessment, 9, 319-328.

Brinthaupt, T. M., & Erwin, L. J. (1992). Reporting about the self: Issues and implications. In T. M. Brinthaupt & R. P. Lipka (Eds.) The self: Definitional and methodological issues. New York: SUNY Press.

Brinthaupt, T. M., & Lipka, R. P. (Eds.). (1992). The self: Definitional and methodological issues. New York: SUNY Press.

Browne, M. W., & Cudeck, R. (1989). Single sample cross-validation indices for covariance-structures. Multivariate behavioral research, 24, 445-455.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen (Ed.) Testing structural equation models. Newbury Park, Ca: Sage.

Byrne, B. M. (1984). The general/academic self-concept nomological network: A review of construct validation. Review of Educational Research, 54, 427-456.

Byrne, B. M. (1989). A primer of LISREL: Basic applications and programming for confirmatory factor analytic models. New York: Springer-Verlag.

Byrne, B. M. (1990). Social self-concept: Testing the validity of a multifaceted, hierarchical structure. Unpublished technical report. University of Ottawa.

Byrne, B. M., Baron, P., & Campbell, T. L. (1993). Measuring

adolescent depression: Factorial validity and invariance of the Beck Depression Inventory across gender. Journal of Research on Adolescence, 3, 127-143.

Byrne, B. M., & Schneider, B. H. (1988). Perceived competence scale for children: Testing for factorial validity and invariance across age and ability. Applied Measurement in Education, 1, 171-187.

Byrne, B. M., & Shavelson, R. J. (1986). On the structure of adolescent self-concept. Journal of Educational Psychology, 78(6), 474-481.

Byrne, B. M., Shavelson, R. J., & Marsh, H. W. (1992). Multigroup comparisons in self-concept research: Reexamining the assumption of equivalent structure and measurement. In T. M. Brinthaupt & R. P. Lipka (Eds.) The self: Definitional and methodological issues. New York: SUNY Press.

The compact edition of the Oxford English dictionary. (1987). Oxford: Oxford University.

Cooley, C. H. (1902). Human nature and the social order. New York: Charles Scribner's.

Coopersmith, S. (1967). The antecedents of self-esteem. San Francisco, CA: Freeman.

Coopersmith, S. (1975). Coopersmith self-esteem inventory, technical manual. Palo Alto, CA: Consulting Psychologists.

Cudeck, R. (1983). Cross-validation of covariation structures.

Multivariate behavioral research, 18, 147-167.

Daniels-Beirness, T. (1989). Measuring peer status in boys and girls: A problem of apples and oranges. In B. H. Schneider, A. Grazia, J. Nadel, & R. P. Weissberg (Eds.), Social competence in developmental perspective (pp. 107-120). Boston: Kluwer Academic.

Epstein, S. (1973). The self-concept revisited or a theory of a theory. American Psychologist, 28, 405-416.

Epstein, S. (1983). The unconscious, the preconscious, and the self-concept. In I. Suls & A. G. Greenwald (Eds.), Psychological perspectives on the self (pp. 219-247). Hillsdale, NJ: Lawrence Erlbaum.

Forgus, R. H., & Melamed, L. E. (1976). Perception: A cognitive-stage approach (2nd ed.). New York: McGraw-Hill.

Green, K. D., & Forehand, R. (1980). Assessment of children's social skills: A review of methods. Journal of Behavioral Assessment, 2, 143-159.

Harter, S. (1983). Developmental perspectives on the self-system. In E. M. Heatherington (Eds.), Handbook of child psychology: Vol. 4, Socialization, personality, and social development (pp. 275-386). New York: Wiley.

Harter, S. (1985). Manual for the Self-Perception Profile for Children: Revision of the Perceived Competence Scale for Children. Denver, CO: University of Denver.

Harter, S. (1986). Processes underlying the construction,

maintenance, and enhancement of the self-concept in children. In J. Suls & A. G. Greenwald (Eds.), Psychological perspectives on the self (pp. 138-181). Hillsdale, NJ: Lawrence Erlbaum Associates.

Harter, S. (1988). Developmental processes in the construction of the self. In T. D. Yawkey & J. E. Johnson (Eds.), Integrative processes and socialization: Early and middle childhood (pp. 45-78). Hillsdale, NJ: Lawrence Erlbaum Associates.

Harter, S. (1993). Visions of self: Beyond the me in the mirror. In J. E. Jacobs (Eds.), Developmental perspectives on the motivation (pp. 99-104). Lincoln: Nebraska University Press.

Hartup, W. W., Brady, J. E., & Newcomb, A. F. (1983). Social cognition and social interaction in childhood. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), Social cognition and social development (pp. 82-157). Cambridge: Cambridge University Press.

Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. Psychological Review, 94, 319-340.

Hymel, S., & Franke, S. (1985). Children's peer relations: assessing self-perceptions. In B. H. Schneider, K. H. Rubin, & J. E. Ledingham (Eds.), Children's peer relations: Issues in assessment and intervention (pp. 75-91). New York: Springer-Verlag.

Hymel, S., Freigang, R., Franke, S., Both, L., Bream, L., &

Borys, S. (1983). Children's attributions for social situations: Variations as a function of social status and self-perception variables. Paper presented at the annual meeting of the Canadian Psychological Association, Winnipeg, Manitoba.

James, W. (1983). The principles of psychology. Cambridge, MA: Harvard. (original work published 1890).

Joreskog, K. G. (1993). Testing structural equation models. In K. A. Bollen & J. S. Long (Eds.), Testing structural equation models (pp. 294-316). Newbury Park, CA: Sage.

Joreskog, K. G., & Sorbom, D. (1989). LISREL 7 user's reference guide. Chicago: Scientific Software.

Kelley, G. A. (1955). The psychology of personal constructs. New York: Norton.

Ledingham, J. E., Younger, A., Schwartzman, A., & Bergeron, G. (1982). Agreement among teacher, peer, and self-ratings of children's aggression, withdrawal, and likability. Journal of Abnormal Child Psychology, 10, 363-372.

Markus, H., Cross, S., & Wurf, E. (1990). The role of the self-system in competence. In R. J. Sternberg (Ed.), Competence considered (pp. 205-225). New Haven: Yale University Press.

Marsh, H. W. (1984). Relations among dimensions of self-attribution, dimensions of self-concept, and academic achievements. Journal of Educational Psychology, 76,

1291-1308.

Marsh, H. W. (1986a). Self-serving effect (bias?) in academic attributions: Its relation to academic achievement and self-concept. Journal of Educational Psychology, 78, 190-200.

Marsh, H. W. (1986b). Verbal and math self-concepts: An internal/external frame of reference model. American Educational Research Journal, 23, 129-149.

Marsh, H. W. (1988). Self-Description Questionnaire-I: SDQ-I manual and research monograph. San Antonio, TX: Psychological Corporation.

Marsh, H. W. (1992a). Self Description Questionnaire (SDQ) I: A theoretical and empirical basis for the measurement of multiple dimensions of preadolescent self-concept: A test manual and research monograph. Macarthur, NSW Australia: Faculty of Education, University of Western Sydney.

Marsh, H. W. (1992b). Self Description Questionnaire (SDQ) II: A theoretical and empirical basis for the measurement of multiple dimensions of adolescent self-concept: An interim test manual and research monograph. Macarthur, NSW Australia: Faculty of Education, University of Western Sydney.

Marsh, H. W. (1992c). Self Description Questionnaire (SDQ) III: A theoretical and empirical basis for the measurement of multiple dimensions of late adolescent self-concept: An

interim test manual and research monograph. Macarthur, NSW Australia: Faculty of Education, University of Western Sydney.

Marsh, H. W., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indices in confirmatory factor analysis. Psychological Bulletin, 103, 391-411.

Marsh, H. W., Barnes, J., Cairns, L., & Tidman, M. (1984). The Self-Description Questionnaire (SDQ): Age effects in the structure and level of self-concept for preadolescent children. Journal of Educational Psychology, 76, 940-156.

Marsh, H. W., & Byrne, B. M. (1993). Do we see ourselves as others infer: Self-other agreement on multiple dimensions of self-concept. Australian Journal of Psychology, 45, 49-58.

Marsh, H. W., Byrne, B. M., & Shavelson, R. J. (1992). A multidimensional, hierarchical self-concept. In T. M. Brinthaupt & R. P. Lipka (Eds.), The self: Definitional and methodological issues (pp. 44-95). New York: State University of New York Press.

Marsh, H. W., & Parker, J. W. (1984). Determinants of student self-concept: Is it better to be a relatively large fish in a small pond even if you don't learn to swim as well. Journal of Personality and Social Psychology, 47, 213-231.

Marsh, H. W., & Shavelson, R. J. (1985). Self-concept: Its multifaceted hierarchical structure. Educational

Psychologist, 20, 107-123.

Masten, A. S., & Morison, P. (1981). The Minnesota Revision of the Class Play: Psychometric properties of a peer assessment instrument. Paper presented at the biennial meeting of the Society for Research in Child Development, Boston, MA.

Masten, A. S., Morison, P., & Pellegrini, D. S. (1985). A revised class play method of peer assessment. Developmental Psychology, 21, 523-533.

Mead, G. H. (1934). Mind, self, and society. Chicago: University of Chicago.

Piers, E. V. (1984). Piers-Harris Children's Self-Concept Scale: Revised Manual. Los Angeles: Western Psychological Services.

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University.

Rosenberg, M. (1979). Conceiving the self. New York: Basic Books.

Rosenberg, M. (1989). Society and the adolescent self-image (rev. ed.). Middletown CT: Wesleyan University Press.

Sarbin, T. S. (1954). Role theory. In G. Lindzey (Ed.), Handbook of social psychology (pp. 223-258). Reading, MA: Addison-Wesley.

Saris, W. E., & Satorra, A. (1993). Power evaluations in structural equation models. In K. A. Bollen & J. S. Long (Eds.), Testing structural equation models (pp. 181-204). Newbury Park, CA: Sage.

Shavelson, R. J., & Bolus, R. (1982). Self-concept: The interplay of theory and methods. Journal of Educational Psychology, 74, 3-17.

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. Review of Educational Research, 46, 407-441.

Sloman, A. (1978). The computer revolution in philosophy: Computers, science, and models of mind. Atlantic Highlands, NJ: Humanities Press.

Soares, A. T., & Soares, L. M. (1969). Self-perceptions of culturally disadvantaged children. American Educational Research Journal, 6, 31-45.

Sternberg, R. J., & Kolligian, J. (1990). Prototypes of competence and incompetence. In R. J. Sternberg & J. Kolligian (Eds.), Competence considered (pp. 117-145). New Haven: Yale University Press.

Stich, S. (1993). Moral philosophy and mental representation. In M. Hechter, L. Nadel, & R. E. Michod (Eds.) The origin of values (pp. 215-228). New York: Aldine de Gruyter.

Trowbridge, N. (1972). Effects of socio-economic class on self-concept of children. American Educational Research Journal, 9, 525-537.

Watkins, D., & Dhawan, N. (1989). Do we need to distinguish the constructs of self-concept and self-esteem. Journal of Social Behavior and Personality, 24, 367-379.

Watkins, D., Fleming, J. S., & Alfon, M. C. A. (1989). A test of Shavelson's hierarchical multifaced self-concept model in a Filipino college sample. International Journal of Psychology, 24, 367-379.

Watkins, D., & Gutierrez, M. (1989). The structure of self-concept: Some Filipino evidence. Australian Psychologist, 24, 401-410.

Wells, L. E., & Marwell, G. (1976). Self-esteem: Its conceptualization and measurement. Beverly Hills: Sage Publications.

Wothke, W. (1993). Nonpositive definite matrices in structural equation modeling. In K. A. Bollen & J. S. Long (Eds.), Testing structural equation models (pp. 256-293). Newbury Park, CA: Sage.

Wylie, R. C. (1974). The self-concept: A review of methodological considerations and measuring instruments. Lincoln, NB: University of Nebraska.

Wylie, R. C. (1979). The self-concept: Theory and research on selected topics. Lincoln: University of Nebraska.

Table 1

Descriptive Statistics for All Indicators

Indicator	Mean	Standard Deviation	Skewness	Kurtosis
SDQG1	4.039	0.887	-0.706	-0.458
SDQG2	4.124	0.818	-0.948	0.963
SDQGS1	3.867	0.960	-0.857	0.291
SDQGS2	3.935	0.924	-0.778	0.089
SDQSS1	3.787	1.052	-0.722	-0.170
SDQSS2	3.783	0.984	-0.835	0.321
SDQSP1	3.734	1.006	-0.688	-0.130
SDQSP2	3.955	0.923	-1.141	1.205
SDQST1	3.763	0.928	-0.607	-0.264
SDQST2	4.232	0.800	-0.957	0.258
SPPCG1	3.365	0.676	-1.210	1.212
SPPCG2	3.170	0.698	-0.663	-0.198
SPPCGS1	2.808	0.799	-0.450	-0.548
SPPCGS2	2.964	0.696	-0.531	-0.044
SPPCSS1	2.878	0.808	-0.474	-0.429
SPPCSS2	2.998	0.730	-0.614	-0.135
SPPCSP1	2.850	0.818	-0.396	-0.621
SPPCSP2	2.955	0.741	-0.548	-0.192
SPPCST1	2.907	0.644	-0.466	0.037
SPPCST2	2.764	0.592	-0.120	-0.148
TRST1	3.765	0.526	-2.576	7.559
TRST2	3.533	0.730	-1.285	0.351
TRSC1	3.458	0.752	-1.428	1.754
TRSC2	3.410	0.823	-0.983	-0.505
RCPSC	0.017	0.966	1.037	1.125

Table 2

Goodness-of-Fit Indicators for Confirmatory Factor Analysis Models Using SDQI and SPPC

Model	χ^2	df	AGFI	CFI	ECVI
0 Null model	2651.83	190	0.165	-	11.911
1 Five-factor model *	-	160	inadmissable solution		
2 Three-factor model **	-	167	inadmissable solution		
3 Two-factor model ***	871.02	169	0.576	0.715	4.217
4 One-factor model	888.34	170	0.581	0.708	4.285
5 Three-factor model ****	835.24	167	0.578	0.729	4.076

Notes:
* Five-factor model comprising general self-concept, general social self-concept, social self-concept at school, social self-concept with teachers, and social self-concept with classmates
** Three-factor model comprising general self-concept, general social self-concept, and social self-concept at school, including classmates and teachers
*** Two-factor model comprising general self-concept and social self-concept
**** Three-factor model comprising (1) general self-concept, (2) general social self-concept & social self-concept at school & social self-concept with peers, and (3) social self-concept with teachers

Table 3

Goodness-of-Fit Indicators for Confirmatory Factor Analysis Models Using SDQ1 Alone

Model	χ^2	df	AGFI	CFI	ECVI
0 Null	2136.76	190	0.183	-	9.454
1 Five-factor model *	-	160	inadmissable solution		
2 Three-factor model **	-	167	inadmissable solution		
3 Two-factor model***	468.04	169	0.780	0.846	2.434
4 One-factor model	492.50	170	0.774	0.834	2.533
5 Three-factor model ****	431.22	167	0.795	0.864	2.289

Notes:
* Five-factor model comprising general self-concept, general social self-concept, social self-concept at school, social self-concept with teachers, and social self-concept with classmates
** Three-factor model comprising general self-concept, general social self-concept, and social self-concept at school, including classmates and teachers
*** Two-factor model comprising general self-concept and social self-concept
**** Three-factor model comprising (1) general self-concept, (2) general social self-concept & social self-concept at school & social self-concept with peers, and (3) social self-concept with teachers

Table 4

Goodness-of-Fit Indicators for Models Incorporating Popularity Factor

Model	χ^2	df	AGFI	CFI	ECVI
0 Null model	2136.76	190	0.183	-	9.454
6 Three-factor model*	387.20	167	0.814	0.887	2.094
7 Four-factor model**	340.07	164	0.827	0.910	1.912
8 Six-factor model ***	-	155	inadmissable solution		

Notes:
* Three-factor model comprising (1) general self-concept & popularity, (2) general social self-concept, social self-concept at school, & social self-concept with classmates, and (3) social self-concept with teachers
** Four-factor model comprising (1) general self-concept, (2) self-concept of popularity, (3) social self-concept in general and in regard to school and peers, and (4) social self-concept in regard to teachers
*** Six-factor model comprising (1) general self-concept, (2) general social self-concept, (3) social self-concept at school, (4) social self-concept with classmates (5) social self-concept with teachers, and (6) self-concept of popularity

Table 5

Latent Variable Correlations Between Social Self-Concept and Child's Social Behaviour as Rated by Teachers and Classmates

	Self-Concept		
Social Behaviour	Popularity	General SSC School, Classmates	Teachers
Social Behaviour with teachers	0.122	0.114	0.173
Social Behaviour with classmates	0.427	0.359	0.313

Table 6

Difference in Chi Square Between Self-Concept/Social Behaviour Correlations Unconstrained and Constrained to Zero

Model	χ^2	df	$\chi 2$	df	$\Delta\chi^2$	Δdf
Model 7 with Social Behaviour: Teachers	376.51	200	380.95	201	4.44	1
Model 7 with Social Behaviour: Peers	403.31	220	419.31	221	16.0	1

Table 7

Comparison of Goodness-of-Fit for Model 7 at Time Point 1 and at Time Point 2

Model Comparison	χ^2	df	AGFI	CFI	ECVI
Model 7 (Time 1)	323.66	164	0.824	0.910	1.998
Comparison 1: Model 7 at Time 2	389.84	164	0.800	0.889	2.316
Comparison 2: Model 7 at Time 2 (λ's constrained)	427.13	180	0.804	0.879	2.342
Comparison 3: Model 7 at Time 2 (λ's and ϕ's constrained)	515.88	190	0.767	0.840	2.672
Comparison 4: Model 7 at Time 2 (λ's, ϕ's, and Θ_δ's constrained)	655.34	210	0.726	0.782	3.151

Figure Caption

Figure 1. Multidimensional, hierarchical model of self-concept proposed by Shavelson, Hubner and Stanton (1976).

Figures

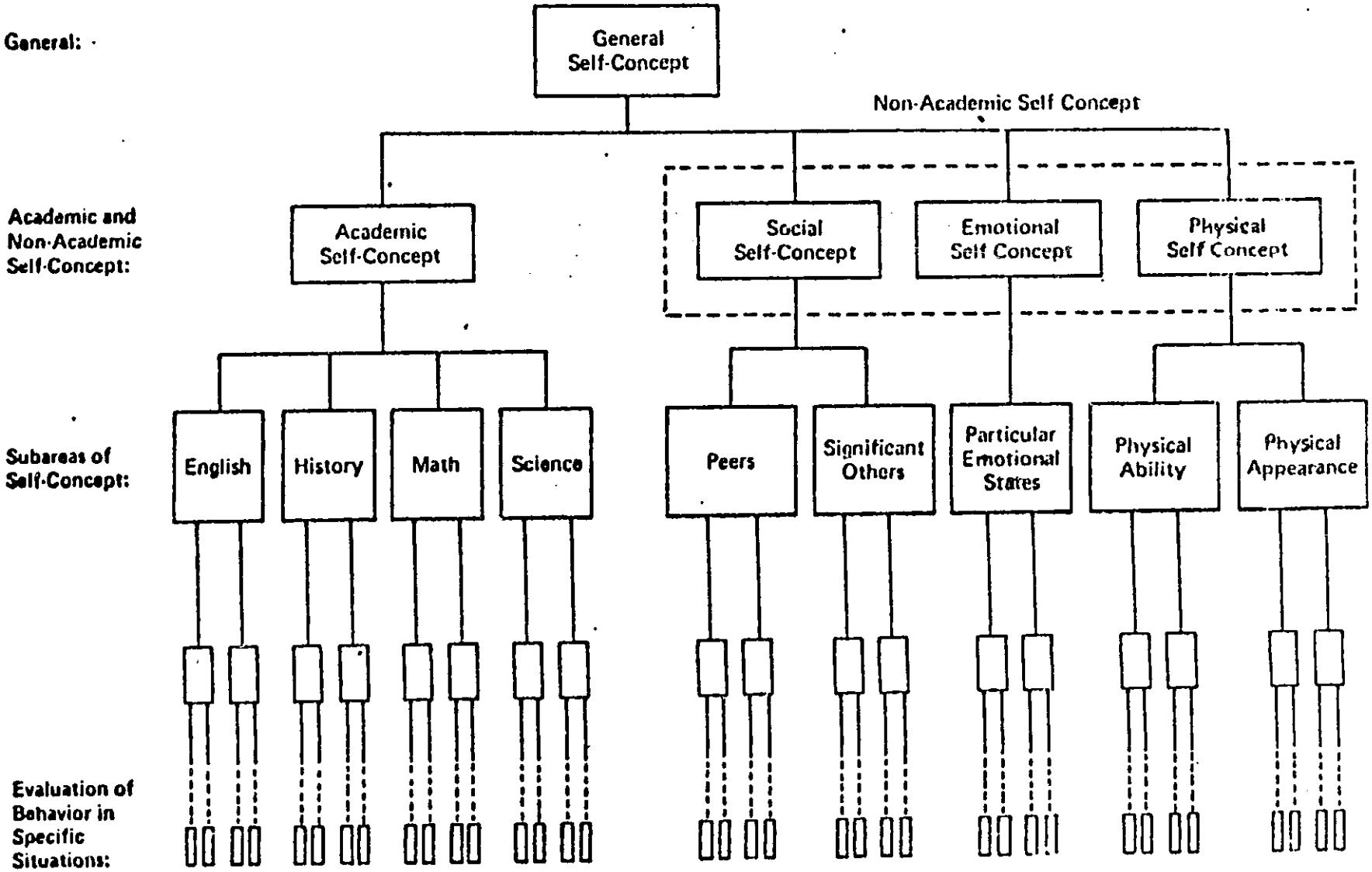

General:
General Self-Concept
Non-Academic Self Concept
Academic and Non-Academic Self-Concept:
Academic Self-Concept
Social Self-Concept
Emotional Self Concept
Physical Self Concept
Subareas of Self-Concept:
English
History
Math
Science
Peers
Significant Others
Particular Emotional States
Physical Ability
Physical Appearance
Evaluation of Behavior in Specific Situations:

Figure 1

Figure Caption

Figure 2. Model of social self-concept proposed by Byrne (1990).

Figures

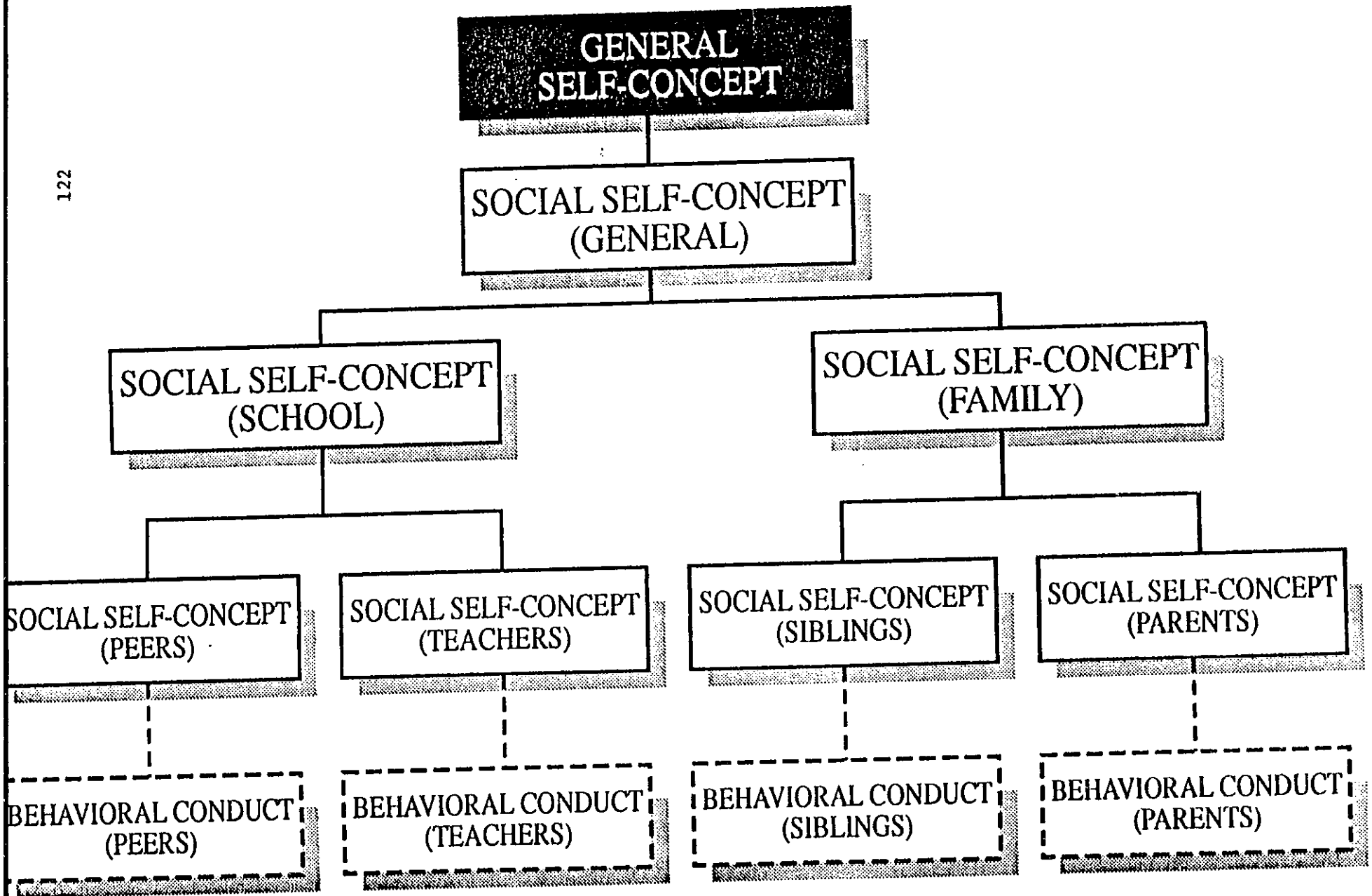

GENERAL SELF-CONCEPT
SOCIAL SELF-CONCEPT (GENERAL)
SOCIAL SELF-CONCEPT (SCHOOL)
SOCIAL SELF-CONCEPT (FAMILY)
SOCIAL SELF-CONCEPT (PEERS)
SOCIAL SELF-CONCEPT (TEACHERS)
SOCIAL SELF-CONCEPT (SIBLINGS)
SOCIAL SELF-CONCEPT (PARENTS)
BEHAVIORAL CONDUCT (PEERS)
BEHAVIORAL CONDUCT (TEACHERS)
BEHAVIORAL CONDUCT (SIBLINGS)
BEHAVIORAL CONDUCT (PARENTS)

Figure Caption

Figure 3. Example model containing four observed variables and two latent variables.

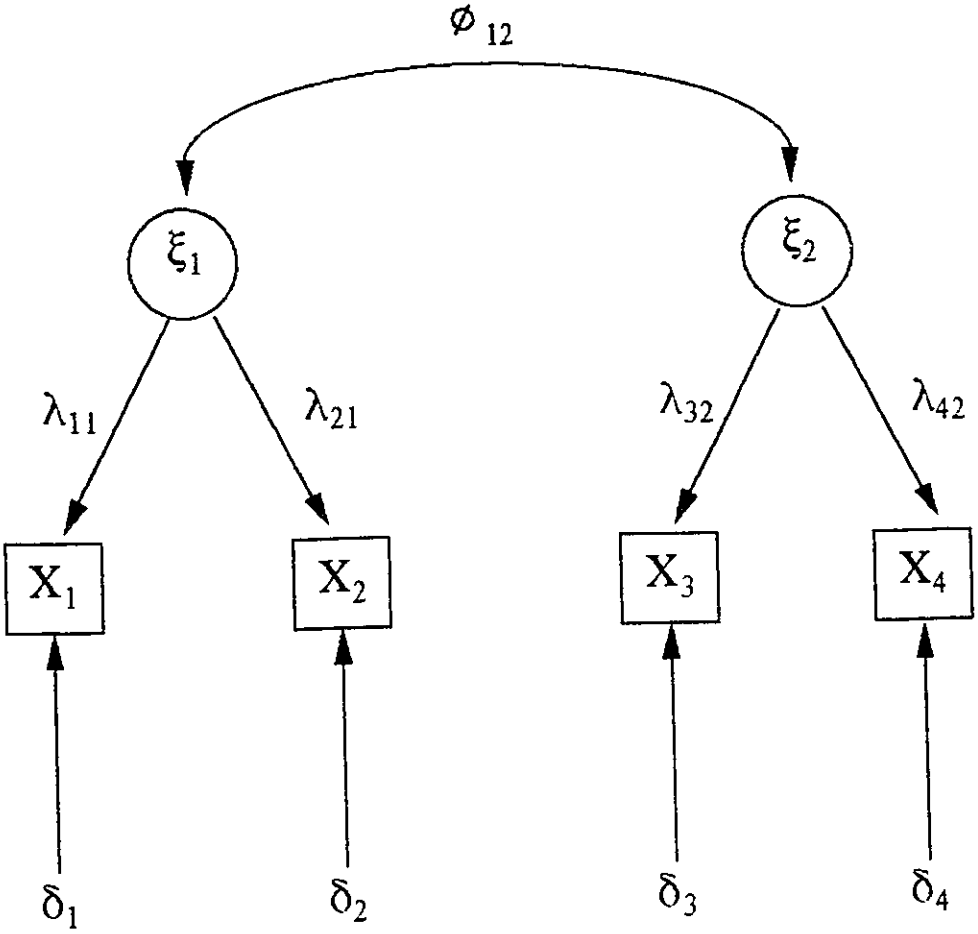

ϕ_{12}
ξ_1
ξ_2
λ_{11}
λ_{21}
λ_{32}
λ_{42}
X_1
X_2
X_3
X_4
δ_1
δ_2
δ_3
δ_4

Figure Caption

Figure 4. Model 1: Five-factor model of social self-concept, comprising (1) General self-concept (General SC), (2) general social self-concept (General SSC), (3) social self-concept at school (SSC School), (4) social self-concept regarding classmates (SSC Classmates), and (5) social self-concept regarding teachers (SSC Teachers).

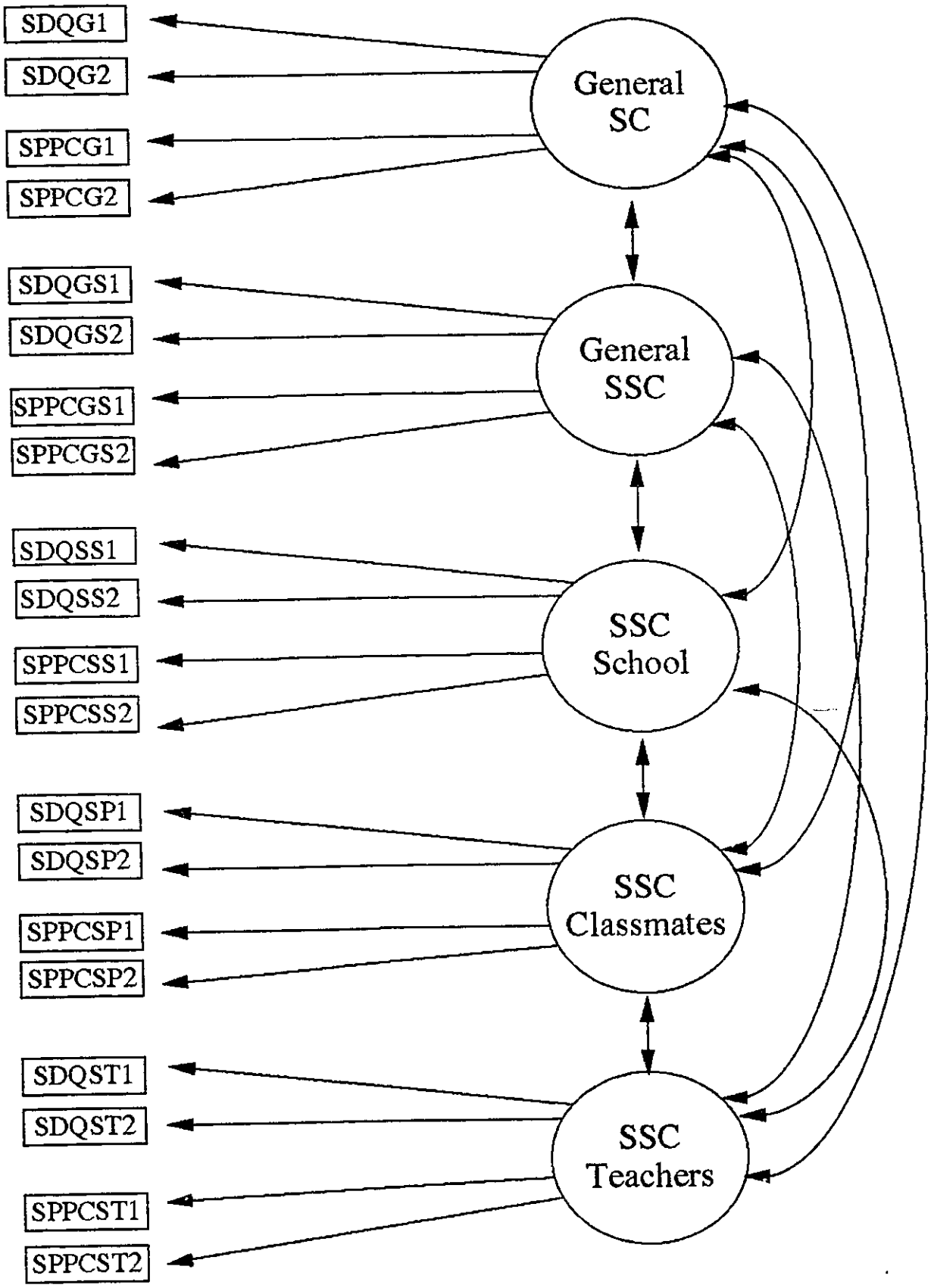

SDQG1
SDQG2
SPPCG1
SPPCG2
General SC
SDQGS1
SDQGS2
SPPCGS1
SPPCGS2
General SSC
SDQSS1
SDQSS2
SPPCSS1
SPPCSS2
SSC School
SDQSP1
SDQSP2
SPPCSP1
SPPCSP2
SSC Classmates
SDQST1
SDQST2
SPPCST1
SPPCST2
SSC Teachers

Figure Caption

Figure 5. Model 2: Three-factor model of social self-concept comprising (1) general self-concept (General SC), (2) general social self-concept (General SSC), and (3) social self-concept at school & -classmates & -teachers (SSC School, Classmates, & Teachers).

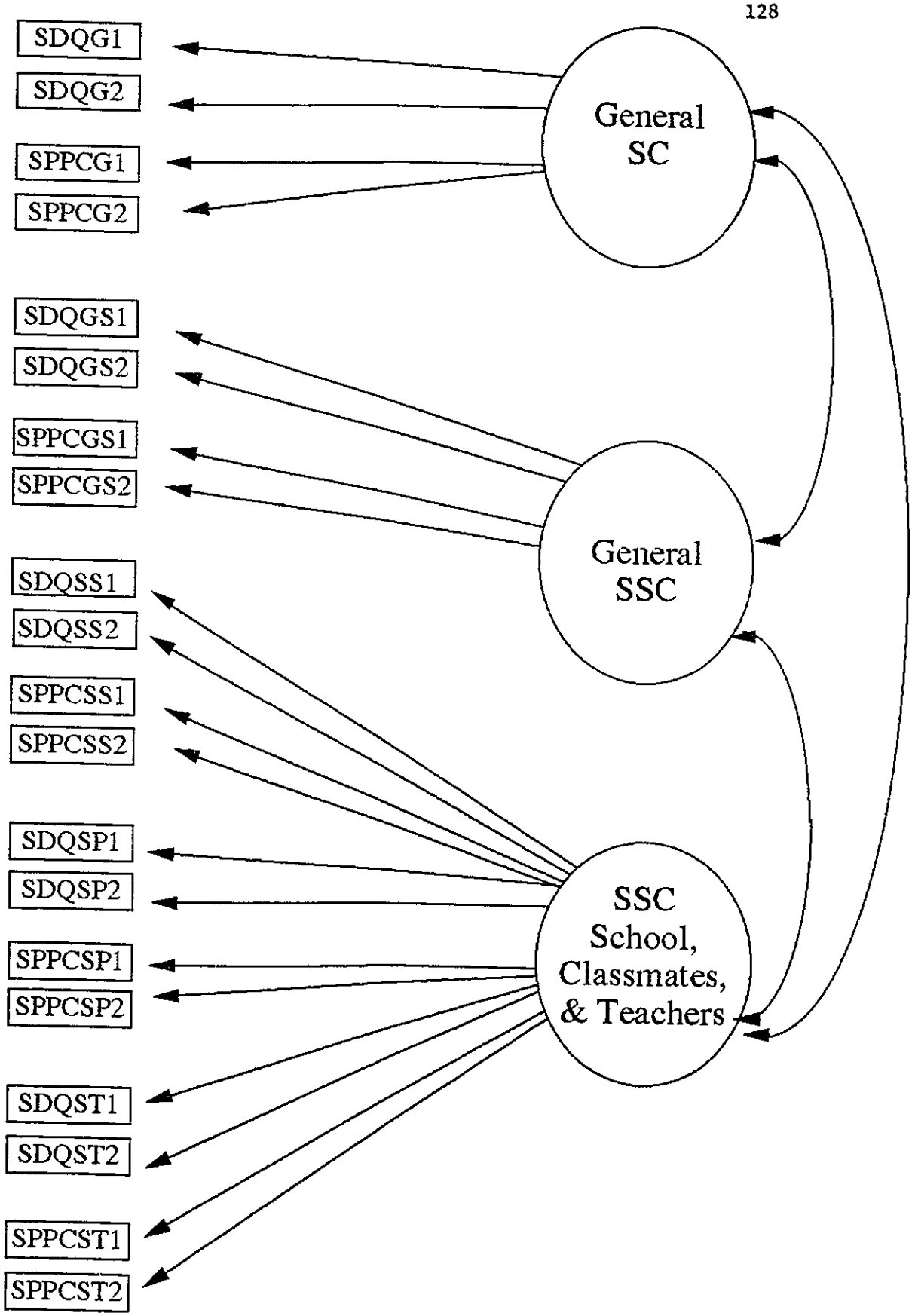

SDQG1
SDQG2
SPPCG1
SPPCG2
General SC
SDQGS1
SDQGS2
SPPCGS1
SPPCGS2
General SSC
SDQSS1
SDQSS2
SPPCSS1
SPPCSS2
SDQSP1
SDQSP2
SPPCSP1
SPPCSP2
SSC School, Classmates, & Teachers
SDQST1
SDQST2
SPPCST1
SPPCST2

Figure Caption

Figure 6. Model 3: Two-factor model of social self-concept comprising (1) general self-concept (General SC) and (2) social self-concept (SSC).

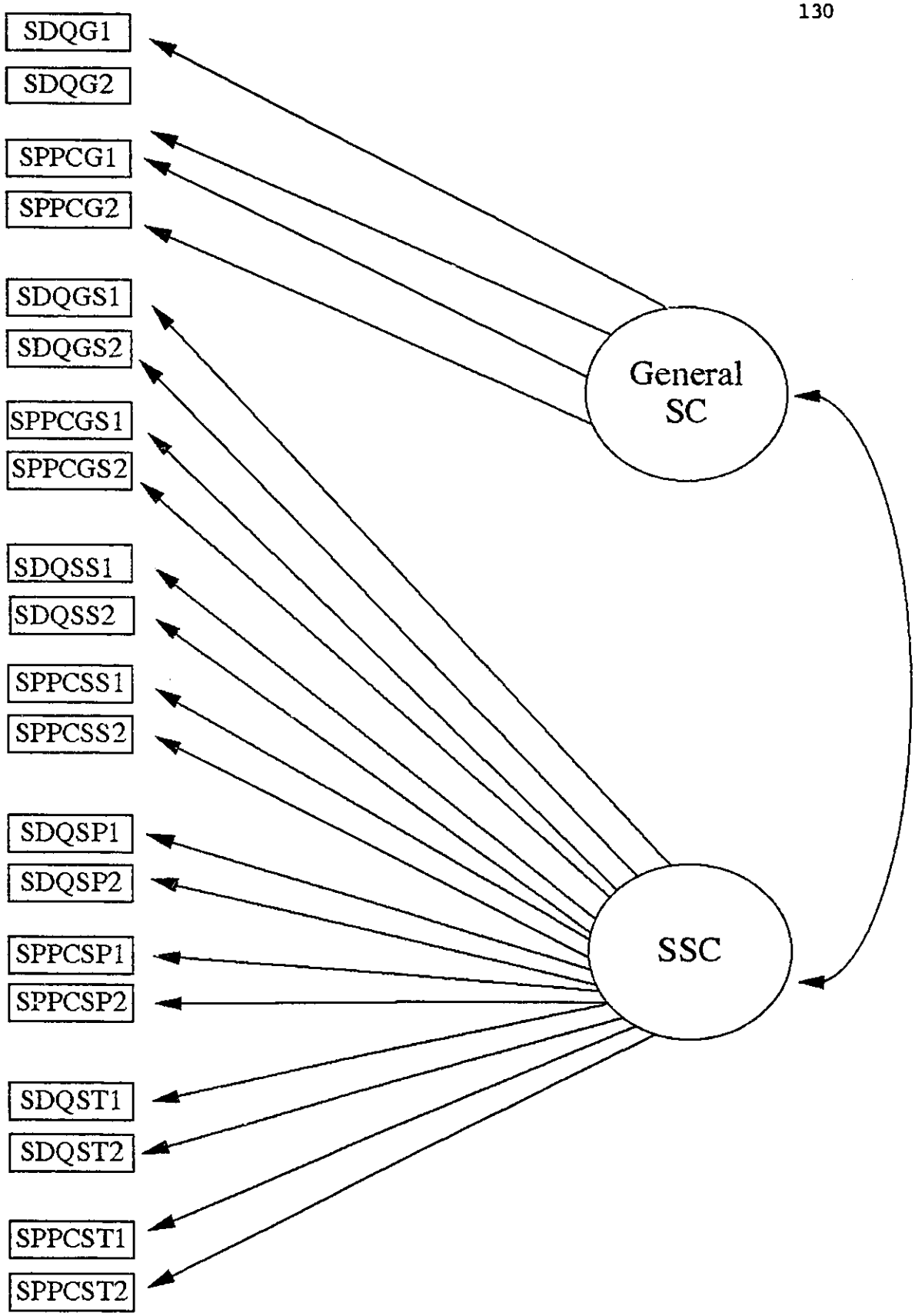

SDQG1
SDQG2
SPPCG1
SPPCG2
SDQGS1
SDQGS2
SPPCGS1
SPPCGS2
SDQSS1
SDQSS2
SPPCSS1
SPPCSS2
SDQSP1
SDQSP2
SPPCSP1
SPPCSP2
SDQST1
SDQST2
SPPCST1
SPPCST2
General SC
SSC

Figure Caption

Figure 7. Model 4: One-factor model of self-concept, including all aspects of general self-concept and social self-concept.

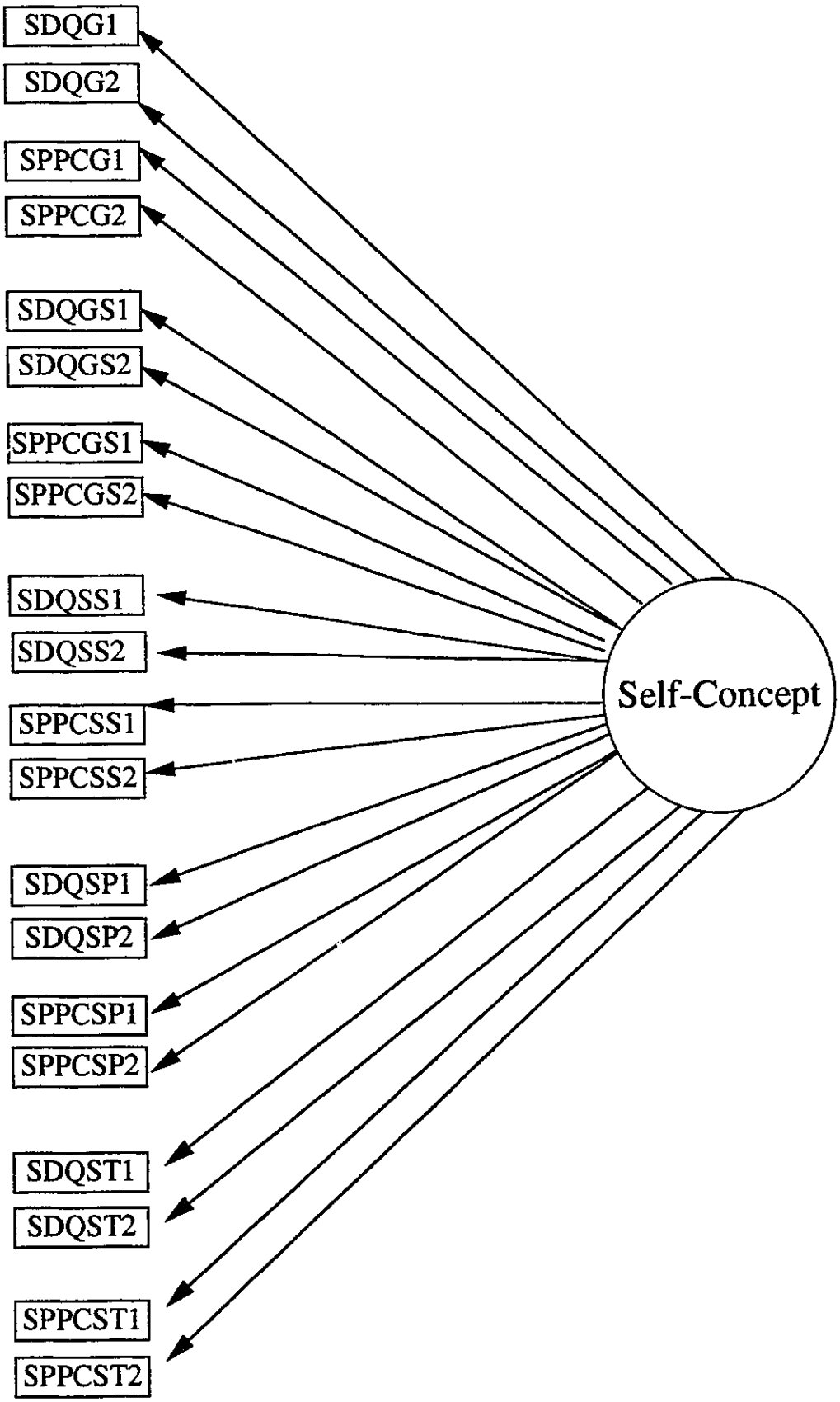

SDQG1
SDQG2
SPPCG1
SPPCG2
SDQGS1
SDQGS2
SPPCGS1
SPPCGS2
SDQSS1
SDQSS2
SPPCSS1
SPPCSS2
SDQSP1
SDQSP2
SPPCSP1
SPPCSP2
SDQST1
SDQST2
SPPCST1
SPPCST2
Self-Concept

Figure Caption

Figure 8. Model 5: Three-factor model of social self-concept comprising (1) general self-concept(General SC), (2) general social self-concept, social self-concept at school, and social self-concept regarding classmates (SSC-General, SSC-School, SSC-Classmates), and (3) social self-concept regarding teachers (SSC-Teachers).

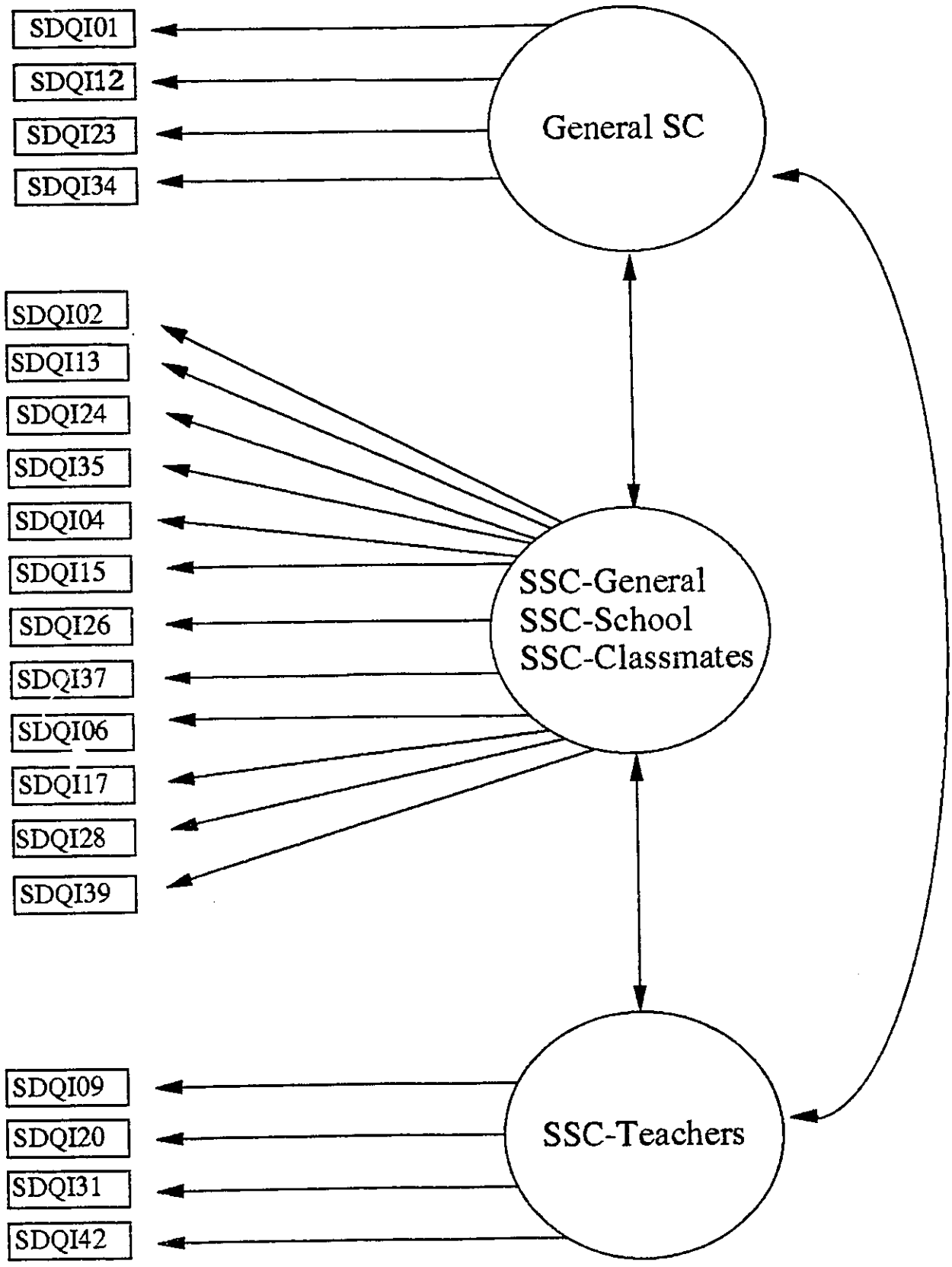

SDQI01
SDQI12
SDQI23
SDQI34
General SC
SDQI02
SDQI13
SDQI24
SDQI35
SDQI04
SDQI15
SDQI26
SDQI37
SDQI06
SDQI17
SDQI28
SDQI39
SSC-General
SSC-School
SSC-Classmates
SDQI09
SDQI20
SDQI31
SDQI42
SSC-Teachers

Figure Caption

Figure 9. Model 6: Three-factor model of social self-concept comprising (1) general self-concept and self-concept of popularity (General SC, SC-Popularity), (2) general social self-concept, social self-concept regarding classmates, and social self-concept at school (SSC-General, SSC-School, SSC-Classmates), and (3) social self-concept regarding teachers (SSC-Teachers).

Figures

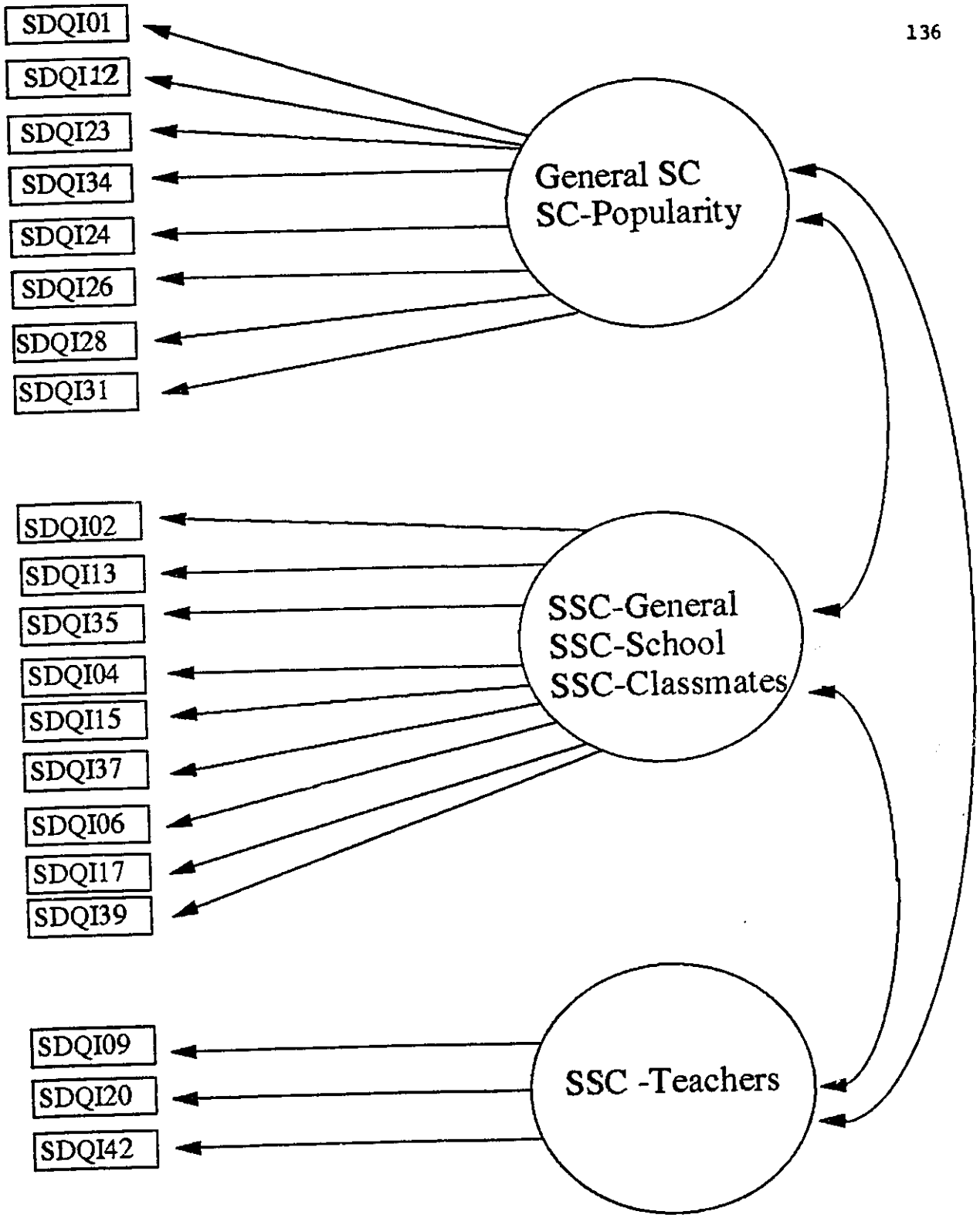

SDQI01
SDQI12
SDQI23
SDQI34
SDQI24
SDQI26
SDQI28
SDQI31
General SC
SC-Popularity
SDQI02
SDQI13
SDQI35
SDQI04
SDQI15
SDQI37
SDQI06
SDQI17
SDQI39
SSC-General
SSC-School
SSC-Classmates
SDQI09
SDQI20
SDQI42
SSC -Teachers

Figure Caption

Figure 10. Model 7: Four-factor model of social self-concept comprising (1) general self-concept (General SC), (2) self-concept of popularity (SC-Popularity), (3) general social self-concept, social self-concept at school, and social self-concept regarding classmates (SSC-General, SSC-School, SSC-Classmates), and (4) social self-concept regarding teachers(SSC-Teachers).

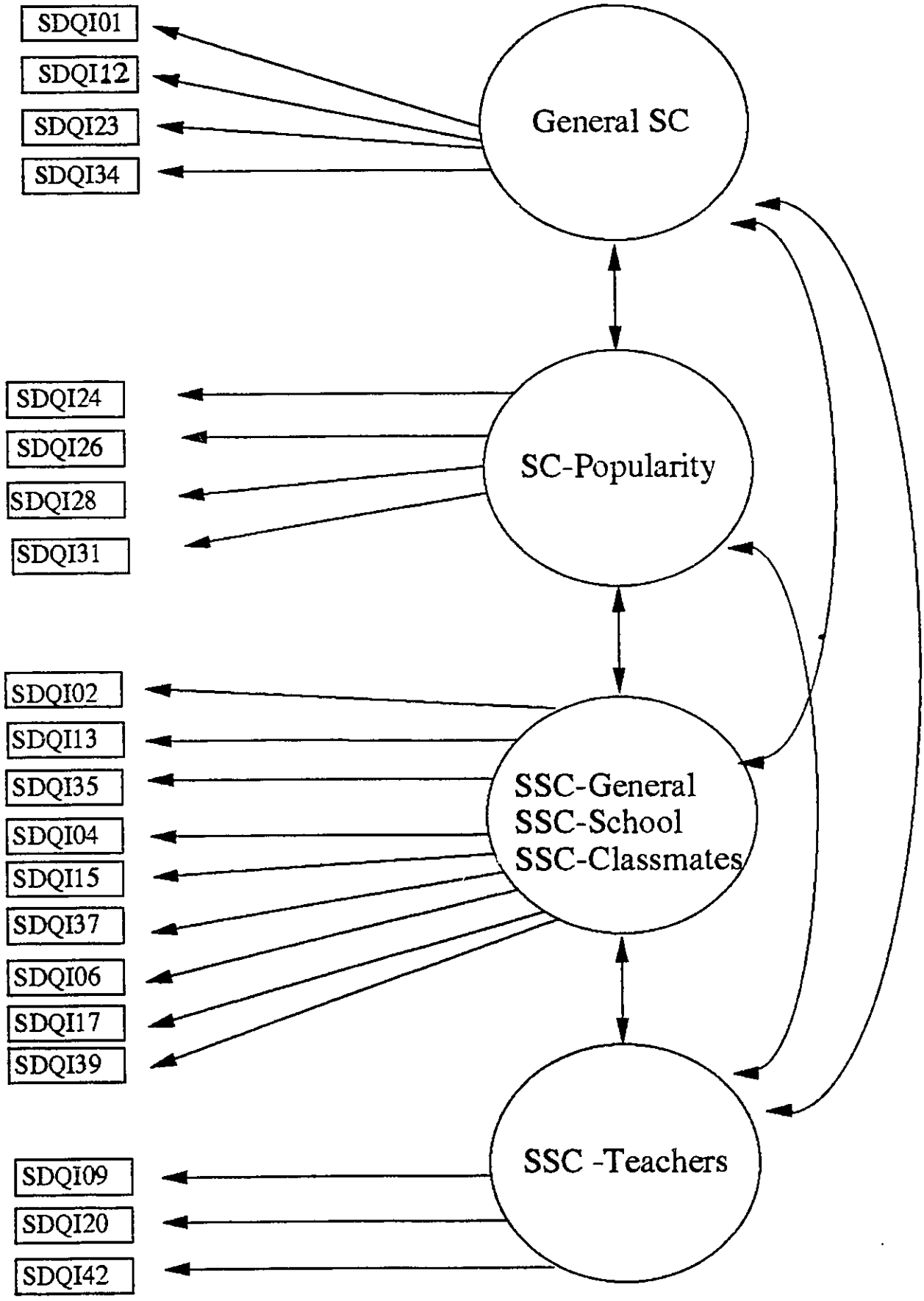

SDQI01
SDQI12
SDQI23
SDQI34
General SC
SDQI24
SDQI26
SDQI28
SDQI31
SC-Popularity
SDQI02
SDQI13
SDQI35
SDQI04
SDQI15
SDQI37
SDQI06
SDQI17
SDQI39
SSC-General
SSC-School
SSC-Classmates
SDQI09
SDQI20
SDQI42
SSC -Teachers

Figure Caption

Figure 11. Model 8: Six-factor model of social self-concept comprising (1) general self-concept (General SC), (2) general social self-concept (SSC-General), (3) social self-concept at school (SSC-School), (4) social self-concept regarding classmates (SSC-Classmates, (5) social self-concept regarding teachers (SSC-Teachers), and (6) self-concept of popularity (SC-Popularity).

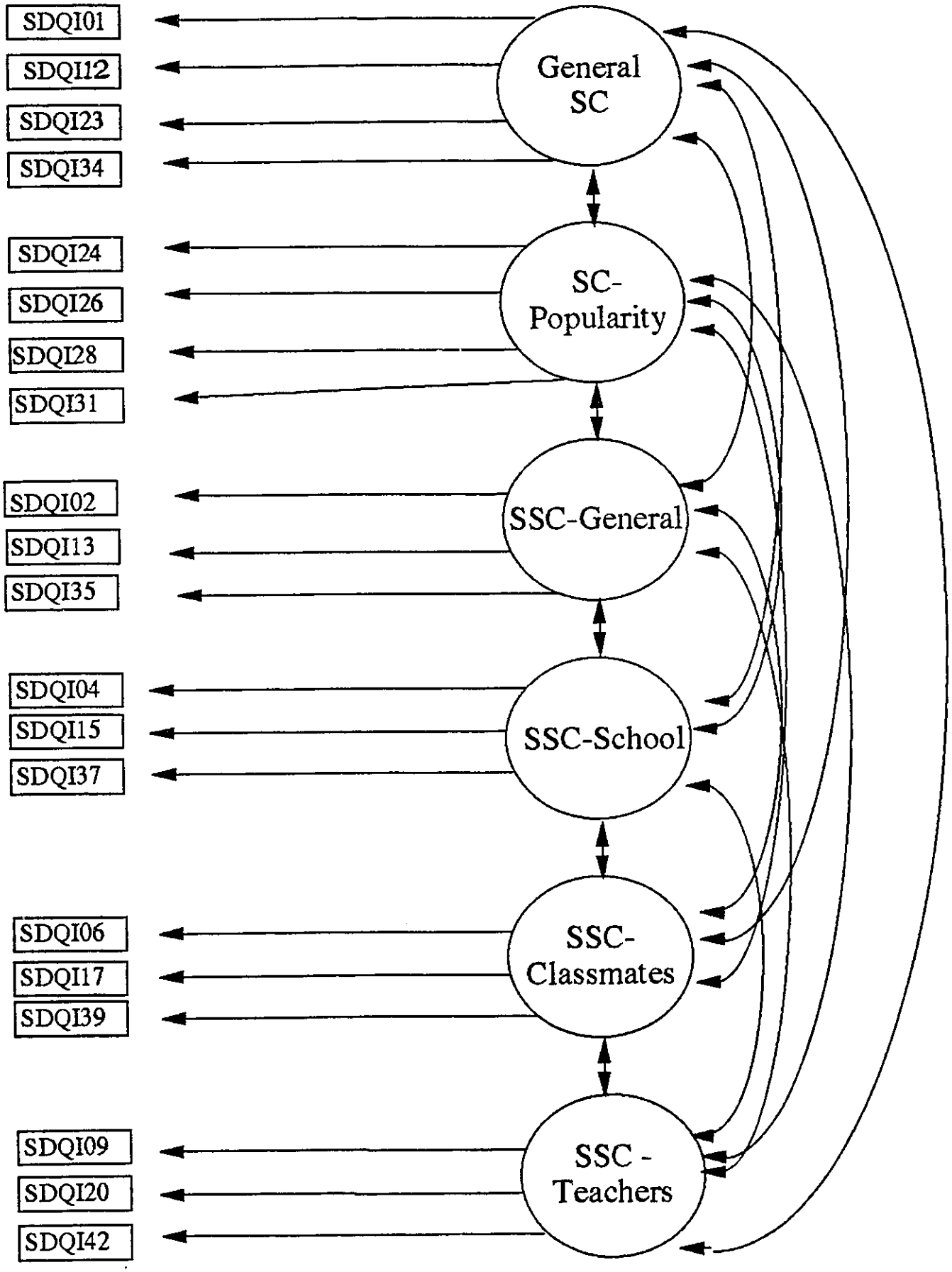
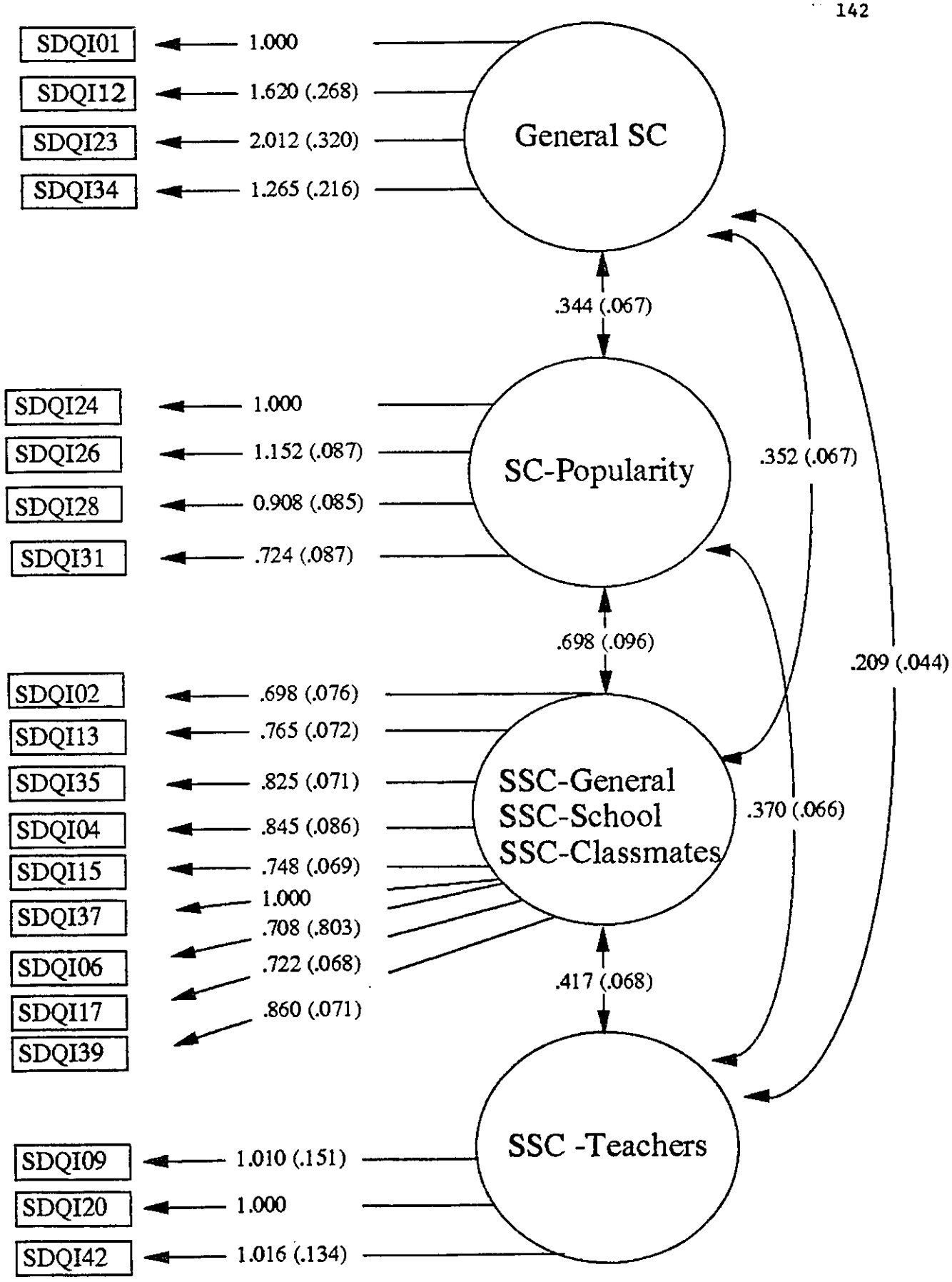

SDQI01
SDQI12
SDQI23
SDQI34
General SC
SDQI24
SDQI26
SDQI28
SDQI31
SC-Popularity
SDQI02
SDQI13
SDQI35
SSC-General
SDQI04
SDQI15
SDQI37
SSC-School
SDQI06
SDQI17
SDQI39
SSC-Classmates
SDQI09
SDQI20
SDQI42
SSC - Teachers

Figure Caption

Figure 12. Best-fitting model (Model 7).


SDQI01
SDQI12
SDQI23
SDQI34
1.000
1.620 (.268)
2.012 (.320)
1.265 (.216)
General SC
.344 (.067)
SDQI24
SDQI26
SDQI28
SDQI31
1.000
1.152 (.087)
0.908 (.085)
.724 (.087)
SC-Popularity
.352 (.067)
.698 (.096)
.209 (.044)
SDQI02
SDQI13
SDQI35
SDQI04
SDQI15
SDQI37
SDQI06
SDQI17
SDQI39
.698 (.076)
.765 (.072)
.825 (.071)
.845 (.086)
.748 (.069)
1.000
.708 (.803)
.722 (.068)
.860 (.071)
SSC-General
SSC-School
SSC-Classmates
.370 (.066)
.417 (.068)
SDQI09
SDQI20
SDQI42
1.010 (.151)
1.000
1.016 (.134)
SSC -Teachers

Appendix A

Student Oral informed Consent Presentation

Your principal has allowed me to tell you about some work that we are doing at the University of Ottawa, and to ask you if you would like to help us with this work. What we want to find out is (a) how you think you get along with other kids at school, (b) how you think you get along with your teachers, (c) how you think you get along with everybody in your family, (d) what you think about how other kids act at school, and (e) what you think about how well you do in your schoolwork.

It will take us about two class visits to ask you all the questions. If you would like to help us with our work, please write your name on the paper which will be given to you. If you do not want to answer our questions, you can do some other schoolwork. However, you must be perfectly quiet while the other children are answering the questions.

Child's Name _____

Teacher's Name _____

School _____

Parental Consent Form

I have read a description of the study to be conducted by Dr. Barbara Byrne and I have no objections to either my child or myself participating in this project. Please send me a questionnaire together with a stamped and addressed envelope to the address noted below.

Signed _____ Date _____

Address: _____

_____

_____

_____

Teacher Consent Form

I have read a description of the study to be conducted by Dr. Barbara Byrne and I have no objections to participating in this project. Accordingly, I understand that an honorarium of $25.00 will be donated to my school.

Signed _____ Date _____

UNIVERSITÉ D'OTTAWA
UNIVERSITY OF OTTAWA

ÉCOLE DE PSYCHOLOGIE
SCHOOL OF PSYCHOLOGY

Dear Parent,

The Research Committee of the Carleton Board of Education has granted me permission to ask for your cooperation in permitting your child to participate in a study of self-concept that is being conducted by the University of Ottawa. The purpose of the research is to determine how academic performance, and relationships with peers, teachers, and family members affect children's perceptions of themselves within the school and home environments.

The study will involve approximately 2 hours in the Fall and again in the Spring, during which time children will complete three types of questionnaires:

1. A scale that asks them how they think they get along with (a) their peers, (b) their teachers, and (c) their family, and how they feel about themselves with respect to their school work.

2. A simple test of reading and arithmetic.

3. A scale which asks children to suggest classmates for roles which fit descriptions of typical social behaviours in the classroom.

Teachers will also complete a social behaviour questionnaire for each child for whom consent has been received, and achievement data will be obtained from the school records. The study is also seeking your help by asking you to complete a questionnaire which asks how you think your child gets along with teachers, other children at school, and family members. Student and teacher questionnaires will be completed in October/November and again in April/May; the parent questionnaire will be completed in October/November only.

Please be assured that all information will be used for research purposes only and will be kept strictly confidential; only my research assistants and I will have access to these data.

If you agree to have your child participate in this study, please sign and provide your address on the enclosed consent form, and return it to your child's teacher within the next week. The questionnaire will then be mailed to you, and you will be asked to return the completed, confidential questionnaire to me in the stamped and addressed envelope provided.

Thank you in advance for your assistance and cooperation. Should you have further questions concerning this study, please feel free to call me at 564-4242.

Sincerely,

Barbara M. Byrne, Ph.D.
Associate Professor

145 JEAN-JACQUES LUSSIER, OTTAWA, ONTARIO, CANADA K1N 6N5
(613) 564-4242

UNIVERSITÉ D'OTTAWA
UNIVERSITY OF OTTAWA

ÉCOLE DE PSYCHOLOGIE
SCHOOL OF PSYCHOLOGY

Dear Teacher,

The Carleton Roman Catholic School Board has granted me permission to ask for your cooperation in participating in a study of self-concept that is being conducted by the University of Ottawa. The purpose of the research is to determine how academic performance, and relationships with peers, teachers, and family members affect students' perceptions of themselves within the school and home environments.

The study will involve approximately two hours in January and again in May, during which time children will complete three types of questionnaires:

1. A scale that asks them how they think they get along with (a) their peers, (b) their teachers, and (c) their family, and how they feel about themselves with respect to their school work.

2. A simple test of reading and mathematics.

3. A scale which asks students to suggest classmates for roles which fit descriptions of typical social behaviours in the classroom.

These questionnaires will be administered by trained research assistants so that you need not remain in the classroom if you do not wish to do so. I am hopeful, however, that you will also be willing to participate in the study by completing a social behaviour questionnaire and a grade point value related to Language Arts and Mathematics achievement for each student in your class for whom consent has been received. As a token of our appreciation, an honorarium of $25.00 will be given to the school for each teacher who participates in this study.

Please be assured that all information will be used for research purposes only and will be kept strictly confidential; only my research assistants and I will have access to these data.

If you agree to participate in this study, please sign the accompanying consent form and return it to the research assistant.

Thank you in advance for your assistance and cooperation. Should you have further questions concerning this study, please feel free to call me at 564-4242.

Sincerely,

Barbara M. Byrne, Ph.D.
Associate Professor

145 JEAN-JACQUES LUSSIER, OTTAWA, ONTARIO, CANADA K1N 6N5
(613) 564-4242

Appendix B

Instructions for Completion of Instruments

Good morning/afternoon, girls and boys. I am/we are very happy to be here with your class today. My name is _____ and I do research at the University of Ottawa. Today you are helping us to do very important research that will help to answer many questions that researchers have been asking about how children see themselves. Research must be done very carefully to give the best answers to questions. That is why I will ask you to be sure to follow the instructions I give you. There's a lot to do in the time we have available so we will have to move quite quickly through everything. We hipe that being in this study will be interesting for you. It might give you some idea of what it would be like to do research yourself.

READ CONSENT FORM

Do you have any questions? [Answer only questions that pertain to consent, confidentiality, the instruments, etc. Peripheral subjects should be avoided because of time restraints.]

Now we will pass out the first questionnaire for everyone who would like to be in the study.

Fill in the information at the top with your name and so on. But don't start answering the questions yet. Has everyone put their name on the top? Good.

This is a chance to look at yourself. IT IS NOT A TEST. There are no right answers and everyone will have different answers. Be sure that your answers show how you feel about yourself. PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE. We will keep your answers private and not show them to anyone.

HOLD UP EXAMPLE

When we begin please read each sentence and choose an answer. I will read the sentence aloud and you read it quietly to yourself. There are five possilbe answers for each question -- "True", "False", and three answers inbetween There are five boxes next to each sentence, one for each of the answers. The answers are written at the top of the boxes. Choose your answer to a sentence and put a check mark in the box under the answer you choose. DO NOT say your answer out loud or talk about it with anyone else.

Before we start let's look at these examples. A student, Bob, has answered these sentences to show you how to do it.

[READ EXAMPLE ONE]: I like to read comic books.

Bob checked the box under the answer "true". This means that he really likes to read comic books. If Bob did not like to read comic books very much, he would have answered "false" or "mostly false".

[READ EXAMPLE TWO]: I am neat and tidy.

Bob answered "sometimes false, sometimes true" because he is not very neat, but he is not very messy either.

If you want to change an answer you have marked you should cross out the check mark and put a new check mark in another box on the same line. For all the sentences be sure that your check mark is on the same line as the sentence you are answering. You should have only one answer for each sentence. Some of the questions are about your brothers and sisters. If you are an only child do not answer these questions. Just leave them blank. But do not leave out any other sentences. Once we start please do not talk. This is very important.

Does everyone understand? If you have any questions hold up your hand. Alright, we'll start with the first question. One...

[READ SDQ1 ITEMS]

Now we've gotten to Part B.
Again, this is a survey, not a test. There are no right or wrong answers. Since kids are very different from one another, each of you will be putting down something different.
First let me explain how these questions work. Here is a sample question.

[HOLD UP AND READ SAMPLE]: Some kids would rather play outdoors BUT other kids would rather watch TV.
This question talks about two kinds of kids, and we want to know which kids are most like you.

So what I want you to decide first is whether you are more like the kids on the left side who would rather play outdoors, or whether you are more like the kids on the right side who would rather watch TV. You wouldn't mark anything yet, but first decide which kind of kid is most like you, and go to that side of the sentence.

Now, the second thing I want you to think about, now that you have decided which kind of kids are most like you, is to decide whether that is only sort of true for you, or really true for you. If it's only sort of true, then put a checkmark in the box

under sort of true; if it's really true for you, then put a checkmark in that box, under really true.

I'm going to decide that I'm the kind of kid who would rather watch TV. So I go to this side of the page. Now I'm goint to decide that that's only sort of true for me. So I tick this box.

For each sentence you onloy check one box. Sometimes it will be on one side of the page, another time it will be on the other side of the page, but you can only check one box for each sentence. You don't check both sides, just the one side most like you.

Ok. does everyone understand? Now I'm going to read the sentences out loud. For each one, just check one box, the one that goes with what is true for you, what you are most like.

[READ SPPC ITEMS]

[Then follows math and reading tests. Then a recess break or break till another day.]

Thank you very much for your cooperation today. You have helped us a lot with our work. We will see you again to finish the questionnaires. The next part will be different from what we

have done so far. Goodbye, etc.

Next Session:

Good morning boys and girls. I am here today so that we can finish the questionnaires that we started last week (or whatever is appropriate). What we're going to do this time is a little different from what we did last week. Today we are going to have you pretend that you are going to direct a play. As I call your name please come and get your copy.

Now what we want each of you to do is to pretend that you are a director of a play starring the students in this classroom. The director of a play has to do many things but the most important job is to select the right people to act in the play. So, your job is to choose the students who could play each part or role best. Try to pick the students who seem to fit each part in real life.

Since some students may fit more than one part you may choose the same person for more than one part. That's fine as long as you think carefully about your choices. You can pick from all the names on your list.

As the director you would be too busy to play a part, so you

can't choose a part for yourself. That's why your name has been crossed off on the list we gave you.

Each of you is to choose people to play the parts by yourself. Don't show the other kids your choices. We won't show anyone either.

[HOLD UP EXAMPLE]

Now before we start, look at this example. The first part is "A person who is a doog leader." I can only choose one person for this part. Let's say I thought (NAME) was the best person to play this part. I would put a checkmark across from their name, like this. The second part is "A person who gets into a lot of fights." I think (NAME) could play this part best, so I put a check here, like this. The next part is "Someone who would rather play alone than with others." I'll pick (NAME) for this part. The fourth part is "A person with good ideas for things to do." I think (FIRST NAME) would be best for this part. Now, I chose this person for another part before, but I also think he/she is the best person to play this part. So, you can see that one person can play more than one part. But remember, only one check for each part, because only one person can play a part.

Do you have any questions about how to fill out the form? Be

careful that your check is lined up with the name you think it is. If you have a ruler or straight edge, use it as a guide. If you have any problems or questions as we go along, just raise your hand.

Now, let's get started. There are 33 parts and each part will be read out loud. We are going to read all the parts out loud so everyone has time to think about it and choose carefully. Also, this way everyone finishes at the same time. Be sure to wait for the next part to be read before choosing someone for it.

The first part is "A person who is a good leader". Look down the list of names and find the boy or girl who you think should play that part and put a check across from their name like we did in the example. Be sure to choose only one student for each part.

[READ THE RCP ITEMS]

Thank you very much boys and girls for helping us with our research. I really had fun meeting all of you and I, or another researcher, will see you again in the spring.

Appendix C

Instruments

Instrument 1. Items from or based on SDQI.

Appendix C

GRADE 3

ID # _____

CIRCLE ONE: BOY GIRL

NAME: _____

AGE: _____

I have ___ sisters.

I have ___ brothers.

CIRCLE ONE: I am the OLDEST / MIDDLE / YOUNGEST / ONLY child in my family.

Part A

		FALSE 1	MOSTLY FALSE 2	SOME-TIMES FALSE/ SOME-TIMES TRUE 3	MOSTLY TRUE 4	TRUE 5
1. Overall, I have a lot to be proud of	1	☐	☐	☐	☐	☐
2. Other kids want me to be their friend	2	☐	☐	☐	☐	☐
3. I look forward to all school subjects	3	☐	☐	☐	☐	☐
4. I make friends easily at school	4	☐	☐	☐	☐	☐
5. I get along with everybody in my family	5	☐	☐	☐	☐	☐
6. I make friends easily in all my classes	6	☐	☐	☐	☐	☐
7. I am interested in reading	7	☐	☐	☐	☐	☐
8. My parents like me	8	☐	☐	☐	☐	☐
9. I make friends easily with teachers	9	☐	☐	☐	☐	☐

		FALSE 1	MOSTLY FALSE 2	SOME-TIMES FALSE/ SOME-TIMES TRUE 3	MOSTLY TRUE 4	TRUE 5
10. I like arithmetic	10	☐	☐	☐	☐	☐
11. I get along well with my brothers and sisters	11	☐	☐	☐	☐	☐
12. Other people think I am a good person	12	☐	☐	☐	☐	☐
13. I get along with other kids easily	13	☐	☐	☐	☐	☐
14. I like all school subjects	14	☐	☐	☐	☐	☐
5. I get along easily with other kids at school	15	☐	☐	☐	☐	☐
16. My family understands me	16	☐	☐	☐	☐	☐
17. I get along easily with other kids in my class	17	☐	☐	☐	☐	☐
18. I like reading	18	☐	☐	☐	☐	☐

Part A (cont'd)

		FALSE 1	MOSTLY FALSE 2	SOME-TIMES FALSE/ SOME-TIMES TRUE 3	MOSTLY TRUE 4	TRUE 5
19. My parents are easy to talk to	19	☐	☐	☐	☐	☐
20. I get along easily with teachers	20	☐	☐	☐	☐	☐
21. I'm good at arithmetic	21	☐	☐	☐	☐	☐
22. I have lots of fun with my brothers and sisters	22	☐	☐	☐	☐	☐
23. I'm as good as most other people	23	☐	☐	☐	☐	☐
24. I am popular with kids my own age	24	☐	☐	☐	☐	☐
25. Work in all school subjects is easy for me	25	☐	☐	☐	☐	☐
26. I am popular with kids my own age at school	26	☐	☐	☐	☐	☐
27. I think my family really likes me	27	☐	☐	☐	☐	☐
28. I am popular with the kids in my class	28	☐	☐	☐	☐	☐
29. I enjoy doing work in reading	29	☐	☐	☐	☐	☐
30. I get along well with my parents	30	☐	☐	☐	☐	☐
31. I am popular with the teachers	31	☐	☐	☐	☐	☐

		FALSE 1	MOSTLY FALSE 2	SOME-TIMES FALSE/ SOME-TIMES TRUE 3	MOSTLY TRUE 4	TRUE 5
32. I am interested in arithmetic	32	☐	☐	☐	☐	☐
33. My brothers and sisters like me	33	☐	☐	☐	☐	☐
34. A lot of things about me are good	34	☐	☐	☐	☐	☐
35. Most other kids like me	35	☐	☐	☐	☐	☐
36. I am interested in all school subjects	36	☐	☐	☐	☐	☐
37. Most kids at school like me	37	☐	☐	☐	☐	☐
38. I have lots of fun doing things with my family	38	☐	☐	☐	☐	☐
39. Most kids in my class like me	39	☐	☐	☐	☐	☐
40. I look forward to reading	40	☐	☐	☐	☐	☐
41. My parents and I have a lot of fun together	41	☐	☐	☐	☐	☐
42. Most teachers like me	42	☐	☐	☐	☐	☐
3. I enjoy doing work in arithmetic	43	☐	☐	☐	☐	☐
44. My brothers and sisters are easy to talk to	44	☐	☐	☐	☐	☐

Instrument 2. Items from or based on SPPC.

Appendix C

Part B

Now you can look at yourself in a different way. The researcher will tell you how to mark these boxes.

	Really True For Me 1	Sort of True For Me 2				Sort of True For Me 3	Really True For Me 4
1.	☐	☐	Some kids feel that they are very good at their school work	BUT	Other kids worry about whether they can do the school work assigned to them	☐	☐
2.	☐	☐	Some kids find it hard to make friends	BUT	Other kids find it's pretty easy to make friends	☐	☐
3.	☐	☐	Some kids feel they are very good at arithmetic	BUT	Other kids find they aren't very good at arithmetic	☐	☐
4.	☐	☐	Some kids are not liked by the teacher	BUT	Other kids are always liked by the teacher	☐	☐
5.	☐	☐	Some kids do not like the way they behave with other kids at school	BUT	Other kids usually like the way they behave with other kids at school	☐	☐
6.	☐	☐	Some kids feel they are very good at reading	BUT	Other kids find they aren't very good at reading	☐	☐
7.	☐	☐	Some kids find it hard to make friends in their class	BUT	Other kids find it pretty easy to make friends in their class	☐	☐
8.	☐	☐	Some kids are often unhappy with themselves	BUT	Other kids are pretty pleased with themselves	☐	☐
9.	☐	☐	Some kids do not like the way they behave with teachers at school	BUT	Other kids usually like the way they behave with teachers at school	☐	☐
10.	☐	☐	Some kids find it hard to make friends at school	BUT	Other kids find it easy to make friends at school	☐	☐
11.	☐	☐	Some kids feel like they are just as smart as other kids their age	BUT	Other kids aren't so sure and wonder if they are as smart	☐	☐
12.	☐	☐	Some kids have a lot of friends	BUT	Other kids don't have very many friends	☐	☐
13.	☐	☐	Some kids feel they are just as smart as other kids at arithmetic	BUT	Other kids feel they aren't as smart at arithmetic as other kids	☐	☐
14.	☐	☐	Some kids are liked by lots of teachers	BUT	Other kids are not liked by most teachers	☐	☐
15.	☐	☐	Some kids usually do the right thing when they are with other kids at school	BUT	Other kids often don't do the right thing when they are with other kids at school	☐	☐

	Really True For Me 1	Sort of True For Me 2				Sort of True For Me 3	Really True For Me 4
6.	☐	☐	Some kids feel they are just as smart at reading as other kids	**BUT**	Other kids feel they aren't as smart at reading as other kids	☐	☐
17.	☐	☐	Some kids have a lot of friends in their class	**BUT**	Other kids don't have very many friends in their class	☐	☐
18.	☐	☐	Some kids don't like the way they are leading their life	**BUT**	Other kids do like the way they are leading their life	☐	☐
19.	☐	☐	Some kids usually do the right thing at school when teachers are around	**BUT**	Other kids often don't do the right thing at school even when the teachers are around	☐	☐
20.	☐	☐	Some kids have a lot of friends at school	**BUT**	Other kids don't have very many friends at school	☐	☐
21.	☐	☐	Some kids are pretty slow in finishing their school work	**BUT**	Other kids can do their school work quickly	☐	☐
22.	☐	☐	Some kids would like to have a lot more friends	**BUT**	Other kids have as many friends as they want	☐	☐
23.	☐	☐	Some kids are slow at finishing arithmetic problems	**BUT**	Other kids are pretty fast at finishing arithmetic problems.	☐	☐
24.	☐	☐	Some kids would like to have teachers like them	**BUT**	Other kids never have to worry about being liked by teachers	☐	☐
25.	☐	☐	Some kids usually act the way they know they are supposed to when they are with other kids at school	**BUT**	Other kids often don't act the way they are supposed to when they are with other kids at school	☐	☐
26.	☐	☐	Some kids are pretty good at spelling	**BUT**	Other kids are not very good at spelling	☐	☐
27.	☐	☐	Some kids would like to have a lot more friends in their class	**BUT**	Other kids have as many friends as they want in their class	☐	☐
28.	☐	☐	Some kids are happy with themselves as a person	**BUT**	Other kids are not happy with themselves	☐	☐
29.	☐	☐	Some kids usually act the way they know they are supposed to at school when the teachers are around	**BUT**	Other kids often don't act the way they know they are supposed to at school even when the teachers are around	☐	☐
30.	☐	☐	Some kids would like to have a lot more friends at school	**BUT**	Other kids have as many friends as they want at school	☐	☐

	Really True For Me 1	Sort of True For Me 2				Sort of True For Me 3	Really True For Me 4
31.	☐	☐	Some kids often forget what they learn	BUT	Other kids can remember things easily	☐	☐
32.	☐	☐	Some kids are always doing things with a lot of kids	BUT	Other kids usually do things by themselves	☐	☐
33.	☐	☐	Some kids often forget how to do arithmetic	BUT	Other kids can easily remember how to do arithmetic	☐	☐
34.	☐	☐	Some kids are always picked by the teacher to do things	BUT	Other kids hardly ever get picked by the teacher to do things	☐	☐
35.	☐	☐	Some kids usually get into trouble at school because of the things they do to other kids	BUT	Other kids hardly ever get into trouble at school because of the things they do to other kids	☐	☐
36.	☐	☐	Some kids often forget how to spell	BUT	Other kids can easily remember how to spell	☐	☐
37.	☐	☐	Some kids are always the ones that other kids want to do things with in class	BUT	Other kids are the ones that nobody ever wants to do things with in class	☐	☐
38.	☐	☐	Some kids like the kind of person they are	BUT	Other kids often wish they were someone else	☐	☐
39.	☐	☐	Some kids usually get into trouble at school because of the things they do to teachers	BUT	Other kids hardly ever get into trouble at school because of the things they do to teachers	☐	☐
40.	☐	☐	Some kids are always doing things with a lot of kids at school	BUT	Other kids usually do things by themselves at school	☐	☐
41.	☐	☐	Some kids do very well at their classwork	BUT	Other kids don't do very well at their classwork	☐	☐
42.	☐	☐	Some kids wish that more people their age liked them	BUT	Other kids feel that most people their age like them	☐	☐
43.	☐	☐	Some kids answer lots of arithmetic questions in class	BUT	Other kids don't very often answer arithmetic questions in class	☐	☐
44.	☐	☐	Some kids wish that more teachers liked them	BUT	Other kids feel that most teachers like them	☐	☐
45.	☐	☐	Some kids do things they know they shouldn't do when they are with other kids at school	BUT	Other kids hardly ever do things they know they shouldn't do when they are with other kids at school	☐	☐

	Really True For Me 1	Sort of True For Me 2				Sort of True For Me 3	Really True For Me 4
46.	☐	☐	Some kids answer lots of questions about stories we read in class	BUT	Other kids don't very often answer questions about stories we read in class	☐	☐
47.	☐	☐	Somes kids wish that more kids in their class liked them	BUT	Other kids feel that most kids in their class like them	☐	☐
48.	☐	☐	Some kids are very happy being the way they are	BUT	Other kids wish they were different	☐	☐
49.	☐	☐	Some kids do things they know they shouldn't do at school even when the teacher is there	BUT	Other kids hardly ever do things they know they shouldn't do at school when the teacher is there	☐	☐
50.	☐	☐	Some kids wish that more people their age at school liked them	BUT	Other kids feel that most people their age at school like them	☐	☐
51.	☐	☐	Some kids have trouble figuring out the answers in school	BUT	Other kids almost always can figure out the answers in school	☐	☐
52.	☐	☐	Some kids are popular with others their age	BUT	Other kids are not very popular	☐	☐
53.	☐	☐	Some kids have trouble figuring out the answers in arithmetic	BUT	Other kids can almost always figure out the answers in arithmetic	☐	☐
54.	☐	☐	Some kids are popular with the teachers	BUT	Other kids are not very popular with the teachers	☐	☐
55.	☐	☐	Some kids behave themselves very well at school when they are with other kids	BUT	Other kids find it hard to behave themselves in school when they are with other kids	☐	☐
56.	☐	☐	Some kids have trouble figuring out how to write sentences properly	BUT	Other kids are really good at writing sentences properly	☐	☐
57.	☐	☐	Some kids are popular with other kids in their class	BUT	Other kids are not very popular with other kids in their class	☐	☐
58.	☐	☐	Some kids are not very happy with the way they do a lot of things	BUT	Other kids think the way they do things is fine	☐	☐
59.	☐	☐	Some kids behave themselves very well at school when the teachers are around	BUT	Other kids find it hard to behave themselves at school even when the teachers are around	☐	☐
60.	☐	☐	Some kids are popular with other kids their age at school	BUT	Other kids are not very popular with other kids their age at school	☐	☐

Instrument 3. Items from or based on RCP.

Appendix C

Name ________ ____________ School ____________________ Teacher ____________________ ID # ____________ ________

A CLASS PLAY

Pick someone who could play the part of:

Name	1. A person who is a good leader	2. A person who gets into a lot of fights	3. Someone who would rather play alone than with others	4. A person with good ideas for things to do	5. A person who loses their temper easily	6. Someone who shows off a lot

Pick someone who could play the part of:

Name	7. Someone you can trust	8. A person who interrupts when other children are speaking	9. Someone who has many friends	10. Someone who will wait their turn	11. Someone whose feelings get hurt easily	12. A person whom everybody listens to

Pick someone who could play the part of:

Name	13. Someone who plays fair	14. Someone who has trouble making friends	15. Someone who acts like a little kid	16. Someone who has a good sense of humor	17. A person who can't get others to listen	18. Somebody who is very shy

Pick someone who could play the part of:

Name	19. Someone who is polite	20. Somebody who makes new friends easily	21. A person who is too bossy	22. Someone who is often left out	23. Someone who helps other people when they need it	24. Someone who is usually sad

Pick someone who could play the part of:

Name	25. A person everyone likes to be with	26. A person who can get things going	27. Somebody who teases other children too much	28. Someone who is usually happy	29. Somebody who picks on other kids	30. Someone who likes to play with others rather than alone

Pick someone who could play the part of:

Name	31. Someone who is really good at schoolwork	32. A person who is really good in English	33. A person who is really good at arithmetic			

Instrument 4. Items from or based on TRS.

Appendix C

TEACHER SCALE (Grade 3) ID # _____

Child's Name: _____

Teacher: _____

School: _____

Please indicate your opinion of this child's competence with respect to each of the following questions. First decide if the child can be classified as the one described on the left, or as the one described on the right, and then indicate whether this is true or partly for this student.

	True 1	Partly True 2				Partly True 3	True 4
1.	☐	☐	Does well in most school subjects	OR	Can't do the school work assigned	☐	☐
2.	☐	☐	Does well in arithmetic	OR	Has difficulty with arithmetic	☐	☐
3.	☐	☐	Interacts well with classmates	OR	Has difficulty interacting with classmates	☐	☐
4.	☐	☐	is a good reader	OR	Has difficulty reading	☐	☐
5.	☐	☐	Is socially well behaved with teachers	OR	Is socially poorly behaved with teachers	☐	☐
6.	☐	☐	Retains learned material poorly	OR	Retains learned material well	☐	☐
7.	☐	☐	Gets along well with most teachers	OR	Has difficulty getting along with teachers	☐	☐
8.	☐	☐	Has many friends in his/her class	OR	Has few friends in his/her class	☐	☐
9.	☐	☐	Has many friends at school	OR	Has few friends at school	☐	☐
10.	☐	☐	Often forgets how to do arithmetic problems	OR	Has no difficulty remembering how to do arithmetic problems	☐	☐
11.	☐	☐	Is well liked by most teachers	OR	Is not well liked by most teachers	☐	☐
12.	☐	☐	Behavior with classmates is often disruptive	OR	Behavior with classmates is very satisfactory	☐	☐
13.	☐	☐	Has difficulty expressing ideas in writing	OR	Has no difficulty expressing ideas in writing	☐	☐
14.	☐	☐	Is popular with other children in the class	OR	Is not very popular with other children in the class	☐	☐
15.	☐	☐	Often gets into trouble with teachers	OR	Seldom gets into trouble with teachers	☐	☐
16.	☐	☐	Is not popular with other children at school	OR	Is really popular with other children at school	☐	☐

Appendix D

Observed Variables and their Constituent Items

SElf-Concept Indicators: Self-Description Questionnaire

Indicator	Item
SDQ1G1(General SC)	1. Overall, I have a lot to be proud of. 23. I'm as good as most other people.
SDQ1G2 (General SC)	12. Other people think I am a good person. 34. A lot of things about me are good.
SDQ1SG1 (General SSC)	2. Other kids want me to be their friend. 24. I am popular with kids my own age.
SDQ1SG2 (General SSC)	13. I get along with other kids easily. 35. Most other kids like me.

SDQ1SS1 (SSC School)	4. I make friends easily at school. 26. I am popular with kids my own age at school.
SDQ1SS2 (SSC School)	15. I get along easily with other kids at school. 37. Most kids at school like me.
SDQ1SC1 (SSC Classmates)	6. I make friends easily in all my classes. 28. I am popular with the kids in my class.
SDQ1SC2 (SSC Classmates)	17. I get along easily with other kids in my class. 39. Most kids in my class like me.
SDQ1ST1 (SSC Teachers)	9. I make friends easily with teachers. 31. I am popular with the teachers.
SDQ1ST2 (SSC Teachers)	20. I get along easily with teachers. 42. Most teachers like me.

SElf-Concept Indicators: Self-Perception Profile for Children

Indicator	Item
SPG1 (General SC)	8. Some kids are often unhappy with themselves BUT Other kids are pretty pleased with themselves. 28. Some kids are happy with themselves as a person BUT Other kids are not happy with themselves. 48. Some kids are very happy being the way they are BUT other kids wish they were different.
SPG2 (General SC)	18.Some kids don't like the way they are leading their life BUT other kids do like the way they are leading their life. 38. Some kids like the kind of person they are BUT Other kids often wish they were someone else. 58. Some kids are not very happy with the way they do a lot of things BUT Other kids think the way they do things is fine.

SPSG1 (General SSC)	2. Some kids find it hard to make friends BUT other kids find it's pretty easy to make friends. 22. Some kids would like to have a lot more friends BUT Other kids have as many friends as they want. 42. Some kids wish that more people their age liked them BUT Other kids feel that most people their age like them.
SPSG2 (General SSC)	12. Some kids have a lot of friends BUT Other kids don't have very many friends. 32. Some kids are always doing things with a lot of kids BUT Other kids usually do things by themselves. 52. Some kids are popular with others their age BUT Other kids are not very popular.
SPSS1 (SSC School)	10. Some kids find it hard to make friends at school BUT Other kids find it easy to make friends at

	school. 30. Some kids would like to have a lot more friends at school BUT Other kids have as many friends as they want at school. 50. Some kids wish that more people their age at school liked them BUT Other kids feel that most people their age at school like them.
SPSS2 (SSC School)	20. Some kids have a lot of friends at school BUT Other kids don't have very many friends at school. 40. Some kids are always doing things with a lot of kids at school BUT Other kids usually do things by themselves at school. 60. Some kids are popular with other kids their age at school BUT Other kids are not very popular with other kids their age at school.
SPSC1 (SSC Classmates)	7. Some kids find it hard to make friends in their class BUT Other

kids find it pretty easy to make friends in their class.

27. Some kids would like to have a lot more friends in their class BUT Other kids have as many friends as they want in their class.

47. Some kids wish that more kids in their class liked them BUT Other kids feel that most kids in their class like them.

SPSC2 (SSC Classmates)

17. Some kids have a lot of friends in their class BUT Other kids don't have very many friends in their class.

37. Some kids are always the ones that other kids want to do things with in class BUT Other kids are the ones that nobody ever wants to do things with in class.

57. Some kids are popular with other kids in their class BUT Other kids are not very popular with other kids in their class.

SPST1 (SSC Teachers)	4. Some kids are not liked by the teacher BUT Other kids are always liked by the teacher. 24. Some kids would like to have teachers like them BUT Other kids never have to worry about being liked by teachers. 44. Some kids wish that more teachers liked them BUT Other kids feel that most teachers like them.
SPST2 (SSC Teachers)	14. Some kids are liked by lots of teachers BUT Other kids are not liked by most teachers. 34. Some kids are always picked by the teacher to do things BUT Other kids hardly ever get picked by the teacher to do things. 54. Some kids are popular with the teachers BUT Other kids are not very popular with the teachers.

Social Behaviour Indicators: Teachers

Indicator	Item
TRST1	5. Is socially well behaved with teachers OR is socially poorly behaved with teachers
TRST2	15. Often gets into trouble with teachers OR seldom gets into trouble with teachers

Social Behaviour Indicators: Classmates

Indicator	Items
TRSC1	3. Interacts well with classmates OR Has difficulty interacting with classmates
TRSC2	12. Behavior with classmates is often disruptive OR Behavior with classmates is very satisfactory
RCPSC	1. A person who is a good leader. 4. A person with good ideas for things to do. 7. Someone you can trust. 9. Someone who has many friends. 10. Someone who will wait their turn. 12. A person whom everybody listens to. 13. Someone who plays fair. 16. Someone who has a good sense of humour. 19. Someone who is polite. 20. Somebody who makes new friends easily. 23. Someone who helps other people when they need it.

25. A person everyone likes to be with.

26. A person who can get things going.

28. Someone who is usually happy.

30. Someone who likes to play with others rather than alone.

Appendix D

Appendix E

Formation of Models: Indicators Based on SDQI and SPPC

Model 1: Five-Factor Model

	Factor				
	General SC	General SSC	SSC School	SSC Class.	SSC Teacher
Indicator	SDQIG1	SDQISG1	SDQISS1	SDQISC1	SDQIST1
	SDQIG2	SDQISG2	SDQISS2	SDQISC2	SDQIST2
	SPG1	SPSG1	SPSS1	SPSC1	SPST1
	SPG2	SPSG2	SPSS2	SPSC2	SPST2

Three-Factor Model

	Factor		
	General SC	General SSC	SSC - School & Classmates & Teachers
Indicator	SDQIG1	SDQISG1	SDQISS1
	SDQIG2	SDQISG2	SDQISS2
	SPG1	SPSG1	SPSS1
	SPG2	SPSG2	SPSS2
			SDQISC1
			SDQISC2
			SPSC1
			SPSC2
			SDQIST1
			SDQIST2
			SPST1
			SPST2

Model 3: Two-Factor Model

	Factor	
	General SC	SSC
Indicator	SDQIG1 SDQIG2 SPG1 SPG2	SDQISG1 SDQISG2 SPSG1 SPSG2 SDQISS1 SDQISS2 SPSS1 SPSS2 SDQISC1 SDQISC2 SPSC1 SPSC2 SDQIST1 SDQIST2 SPST1 SPST2

Model 4: One-Factor Model

	Factor
	SC
Indicator	SDQIG1, SDQIG2, SPG1, SPG2, SDQISG1, SDQISG2, SPSG1, SPSG2, SDQISS1, SDQISS2, SPSS1, SPSS2, SDQISC1, SDQISC2, SPSC1, SPSC2, SDQIST1, SDQIST1, SDQIST2, SPST1, SPST2

Model 5: Three-Factor Model (Exploratory)

	Factor		
	General SC	General SSC & SSC School & SSC Class-mates	SSC Teachers
Indicator	SDQIG1 SDQIG2 SPG1 SPG2	SDQISG1 SDQISG2 SPSG1 SPSG2 SDQISS1 SDQISS2 SPSS1 SPSS2 SDQISC1 SDQISC2 SPSC1 SPSC2	SDQIST1 SDQIST2 SPST1 SPST2

Appendix F

Formation of Models: Indicators Based on SDQI Only

Model 1: Five-Factor Model

	Factor				
	General SC	General SSC	SSC School	SSC Class.	SSC Teacher
Item	01	02	04	06	09
	12	13	15	17	20
	23	24	26	28	31
	34	35	37	39	42

Three-Factor Model

	Factor		
	General SC	General SSC	SSC - School & Classmates & Teachers
Item	01	02	04
	12	13	15
	23	24	26
	34	35	37
			06
			17
			28
			39
			09
			20
			31
			42

Model 3: Two-Factor Model

	Factor	
	General SC	SSC
Item	01 12 23 34	02 13 24 35 04 15 26 37 06 17 28 39 09 20 31 42

Model 4: One-Factor Model

	Factor
	SC
Item	01, 12, 23, 34, 02, 13, 24, 35, 04, 15, 26, 37, 06, 17, 28, 39, 09, 20, 31, 42

Model 5: Three-Factor Model (Exploratory)

	Factor		
	General SC	General SSC & SSC School & SSC Class-mates	SSC Teachers
Item	01	02	09
	12	13	20
	23	24	31
	34	35	42
		04	
		15	
		26	
		37	
		06	
		17	
		28	
		39	

Appendix G

Factor Pattern Matrices for Exploratory Factor Analyses

Using Oblique Rotation

Five-Factor Solution

	Factor				
Item	1	2	3	4	5
37.	.71				
15.	.71				
04.	.67				
13.	.62				
39.	.59				
02.	.56				
17.	.56				
35.	.46				
12.	.46				
06.	.39				
26.*		-.88			
24.*		-.75			
28.*		-.50			
31.*		-.48	.36		
20.			.68		
42.			.61		
09.			.38		
23.				-.53	
34.				-.43	
01.					.38

* Items containing the word "popular".

Four-Factor Solution

Item	Factor 1	2	3	4
15.	.76			
37.	.73			
04.	.68			
13.	.67			
17.	.60			
39.	.59			
02.	.57			
12.	.49			
35.	.47			
06.	.39			
26.*		-.99		
24.*		-.72		
28.*		-.37		
42.			.72	
20.			.61	.39
09.			.38	
31.*		(-.34)	.37	

*Items containing the word "popular".

Note: Values less than .35 are omitted, except in the case of items containing the word "popular" where values over .30 are included in parentheses.

Three-Factor Solution

Item	Factor 1	Factor 2	Factor 3
37.	.90		
15.	.70		
39.	.69		
35.	.66		
04.	.64		
13.	.61		
02.	.57		
12.	.51		
17.	.42		
06.	.37		
26.*		-.94	
24.*		-.74	
28.*	.36	-.37	
31.*		(-.33)	
20.			.83
42.			.39

*Items containing the word "popular".

Note: Values less than .35 are omitted, except in the case of items containing the word "popular" where values over .30 are included in parentheses.

Two-Factor Solution

Item	Factor 1	Factor 2
37.	.77	
39.	.73	
13.	.72	
04.	.71	
15.	.68	
35.	.64	
02.	.58	
06.	.55	
12.	.54	
17.	.51	
42	.50	
09.	.49	
23.	.41	
20.	.38	
28.*	.38	-.36
26.*		-1.01
24.*		-.74
31.*		(-.33)

*Items containing the word "popular".

Note: Values less than .35 are omitted, except in the case of items containing the word "popular" where values over .30 are included in parentheses.

Appendix H

Formation of Models Incorporating Popularity

Model 6: Three-Factor Model

	Factor		
	General SC, SC-Popularity	SSC-General, SSC-School, SSC-Class	SSC-Teachers
Item	01	02	09
	12	13	20
	23	35	42
	34	04	
	24	15	
	26	37	
	28	06	
	31	17	
		39	

Model 7: Four-Factor Model

	Factor			
	General SC	SC-Popular-ity	SSC-General, School, Class	SSC-Teacher
Item	01	24	02	09
	12	26	13	20
	23	28	35	42
	34	31	04	
			15	
			37	
			06	
			17	
			39	

Model 8: Six-Factor Model

	Factor					
	Gen.-SC	Pop.	Gen.-SSC	SSC-School	SSC-Class.	SSC-Teach.
Item	01	24	02	04	06	09
	12	26	13	15	17	20
	23	28	35	37	39	42
	34	31				

Appendix I

Letters of Permission

Received: from UOTTAWA by ACADVM1.UOTTAWA.CA (Mailer R2.07) with BSMTP id 8196; Sun, 05 Mar 95 21:19:45 EST
Received: from ariel.macarthur.uws.EDU.AU by acadvm1.uottawa.ca (IBM VM SMTP V2R2) with TCP; Sun, 05 Mar 95 21:19:43 EST
Received: from HerbMarsh ([137.154.93.36]) by ariel.macarthur.uws.EDU.AU (8.6.10/8.6.6) with SMTP id MAA07238 for <398960@acadvm1.uottawa.ca>; Mon, 6 Mar 1995 12:18:01 +1000
Date: Mon, 6 Mar 1995 12:18:01 +1000
Message-Id: <199503060218.MAA07238@ariel.macarthur.uws.EDU.AU>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Patty Wilson <398960@acadvm1.uottawa.ca>
From: h.marsh@uws.EDU.AU (Herb Marsh)

----------Original message----------
>Dear Dr. Marsh: I am a Doctoral candidate working under the supervision
>of Dr. Barbara Byrne at the U. of Ottawa. My dissertation investigates
>the structure of social self-concept in preadolescents and makes use of
>the items in the SDQI. I am writing to ask permission to reprint those
>items in an appendix of the dissertation. If there is any further infor-
>mation that you require please feel free to contact me. Thank you,
>Patricia Wilson.
>
I am happy for you to reproduce SDQI items in your dissertation. When the PhD has been awarded, would you send me a copy of it? HERB

UNIVERSITÉ D'OTTAWA
UNIVERSITY OF OTTAWA

SERVICE DE LA RECHERCHE
RESEARCH SERVICES

1990 04 17

Dr. Barbara Byrne
School of Psychology
University of Ottawa
INTRA

Dear Dr. Byrne:

SUBJECT: Your project entitled "Social Self-concept: Testing the Validity of a Multifaceted, Hierarchical Structure"

It is my pleasure to inform you that the University Human Research Ethics Committee, after study of the documentation provided, concluded that your project met the appropriate standards of ethical acceptability.

I hereby attach a copy of the certificate of clearance granted by the University Human Research Committee (UHREC). The original has been sent to the Social Science Humanities Research of Canada.

This certification is valid for a period of one year from the time of issuance. I would also like to remind you that, in accordance with the policies of the UHREC, it is your responsibility to notify the Committee of any major changes in this project.

On behalf of the Committee, I wish you success in your project.

Yours sincerely,

Ann B. Denis

Ann Denis, Ph.D.
Chair, UHREC

Encl.

cc: Daniel Coulombe

115 SÉRAPHIN MARION, OTTAWA, ONTARIO, CANADA K1N 6N5
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Certificate of ethical approval of research involving human subjects (for the use of university scholars only)

This section is to be completed by the institution's committee for the surveillance and monitoring of ethical standards for research in which human subjects are involved. The term "subject", for the purposes of this review, refers to any person who is used as a source of raw or unformulated data in the conduct of research and who is not acting in the capacity of principal investigator or assisting such an individual.

The Social Sciences and Humanities Research Council of Canada supports the principle that, in any research undertaking, the rights ar integrity of human subjects take precedence over the need to conduct research. The Council recognizes that it is not itself vested with ar authority to decide, on behalf of the public, when an individual's rights may be superseded by the need for research. However, as a trustee public funds, the Council believes it has a special responsibility to ensure that the activities it supports respect the rights of the public it serve

In this connection, the Council requires that all research projects involving human subjects be approved by the ethics review committee of th institution by which the principal investigator is employed before the research grant application is submitted to the Council. This form must b provided before the adjudication takes place.

Membership of the ethics review committee is expected to be broadly based and should include individuals from both within and without th applicant's department and discipline who have no association with the research project.

In the space below, the composition of the committee should be indicated (though not necessarily the names of the members). This section shou be dated and signed by (1) the committee chairperson, and (2) the applicant's department head or a representative of the institution.

The Council provides a set of ethical guidelines for research with human subjects which should form the basis for the ethics review. (See th *Guide for Applicants*, Annex H.)

Receipt of this completed form will be interpreted as confirmation that the proposed project meets the necessary standards of ethical acceptabili However, the Council reserves the right to final judgment where circumstances warrant.

Certification of Institutional Ethics Review Committee

This is to certify that the Institutional Ethics Review Committee of

University of Ottawa has examined the research proposal b
(name of institution)

Dr. Barbara Byrne entitled Social Self-concept: Testing
(name of applicant)

the Validity of a Multifaceted, Hierarchical Structure
(title of project)

and concludes that, in all respects, the proposed project meets appropriate standards of ethical acceptability as outlined by the Social Scienc and Humanities Research Council.

Members of the Committee

Name (optional)	Position held	Department or discipline
Ann B. Denis	Professor	Sociology
Jane Ledingham	Professor	Psychology
Roger Gauthier	Professor	Human Kinetics
Edmond Rossier	Professor	Microbiology
Sanda Rodgers	Professor	Common Law
Beatrice Wickett	External Member	Elisabeth Bruyère Centre
Jean Farrall	Director	Research Service

Date	Signatures	
17 April 92	Committee chairperson	Department head or representative of institution