Classmates

Studies on the development of their relationships and personality in middle childhood

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Tom

CLASSMATES

Studies on the development
of their relationships and personality in middle childhood

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Studies on the development
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een wetenschappelijke proeve
op het gebied van de Sociale Wetenschappen

Proefschrift

ter verkrijging van de graad van doctor
aan de Katholieke Universiteit Nijmegen
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door
Gerrebertus Jacobus Theodorus Haselager

Geboren op 19 maart 1956
te Kortenhoef

Voor Nicole, Dolly en ...

Natuurlijk had ik dit proefschrift nooit in mijn eentje kunnen schrijven. En natuurlijk wil ik in dit voorwoord zo veel mogelijk mensen noemen en danken die mij op de een of andere manier geholpen hebben bij dit proefschrift. Ik zou hier veel mensen kunnen noemen. Ik zou de namen van proefpersonen, hun klasgenoten, hun ouders en hun leerkrachten willen opsommen, al is me dat niet toegestaan. Tientallen studenten, student-assistenten en andere KUN-medewerkers hebben geassisteerd bij de verzameling, codering en organisatie van onderzoeksgegevens, ik mag hen mijn dank niet onthouden. Ik wil ook de vele medewerkers van eerdere meetronden in dit longitudinale project niet vergeten. Ook heb ik voor dit proefschrift onderzoeks-gegevens van diverse andere projecten gebruikt, ik zou de medewerkers van deze projecten moeten vermelden. Ik heb vriendschap, collegialiteit en steun mogen genieten van medewerkers van de vakgroep ontwikkelingspsychologie en van verre andere instituten, zij zouden hier genoemd kunnen worden. Ik heb voor mijn proefschrift de deskundigheid van diverse experts kunnen benutten, onder andere op het gebied van methoden en technieken, het gebruik van de Engelse taal, en de finale vormgeving van dit proefschrift, ik wil voor hen geen uitzondering maken. Ik ben bij mijn onderzoek en de rapportage daarover grondig en deskundig begeleid, gelukkig wel. Soms meer en vaker dan me lief was, maar het was de moeite waard. Ik zou hier dan toch mijn begeleiders moeten noemen. En zou ik dit proefschrift hebben voltooid als ik niet gesteund was door hen die mijn thuisfront zijn? Ook hun namen zouden hier op hun plaats zijn.

Maar het zouden teveel namen worden. Het moet met minder. Hoeveel namen is eigenlijk goed? Wat is te weinig en wat is te veel? Een kleine selecte steekproef ($\underline{N} = 9$) onder recente proefschriften in mijn eigen omgeving leerde me dat het gemiddeld aantal namen dat in het voorwoord wordt genoemd 19.4 bedraagt (range 6-47). Maar empirische kennis biedt geen houvast als er geen idee achter zit. Zo ook hier.

Waarom dan wil ik mensen bedanken voor de medewerking aan mijn proefschrift? Er zijn prozaïsche redenen: omdat dat zo hoort uiteraard, en omdat ik blij ben dat het nu eindelijk klaar is. Er is een sociaal psychologische reden denkbaar: het noemen van namen versterkt misschien je sociaal netwerk. Zou ik dat nodig hebben?

Achterom kijkend heb ik het gevoel dat het schrijven van dit proefschrift een zinvol proces was, voor mezelf en voor een aantal mensen met wie ik een of andere relatie onderhoud, hetzij persoonlijk, hetzij professioneel. En ik heb het gevoel dat het eindprodukt zinvol is, er zou iets nuttigs mee gedaan kunnen worden. Het schrijven van dit proefschrift is mogelijk gemaakt door anderen, die mij allerlei vormen van ondersteuning hebben geboden. Het is me mogelijk gemaakt iets zinvols te doen. Dat is dan de belangrijkste reden voor mijn dank aan iedereen die mij op een af andere manier heeft geholpen bij de totstandkoming van dit proefschrift. Bij deze.

Nijmegen en Weert, lente 1997.

Gerbert.

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INTRODUCTION

Classmates are children's company for a substantial amount of time during a substantial period of their life course. Classmates participate in the same settings of schools and school classes. They are peers, that is, persons of nearly the same developmental level. Like all peers, classmates may influence each other and may be influenced by each other. These transactional processes emerge within and between the social structures in which classmates are arranged, such as relationships and groups. This dissertation aims to contribute to the knowledge about the relation between these social structures of classmates and their development, and especially to the meaning and importance of social structures for social and personality development during the elementary school period.

In this introductory chapter, I announce four empirical studies that are described in this dissertation. These four studies are like pieces of a complex and large puzzle: They represent different approaches in this area; in several ways, though not systematically, they are connected to each other. To explain the relations between these four studies, I first describe a conceptual framework for social structures of classmates. Following this, I describe how these four empirical studies fit in the conceptual framework.

A CONCEPTUAL FRAMEWORK FOR SOCIAL STRUCTURES OF CLASSMATES

The only purpose of my conceptual framework for social structures of classmates is to provide a tool to relate the studies presented in this dissertation systematically with each other. Usually, the word *classmates* refers to others in a school class, that is, to partners of a target child. Here, I use this word in a short way to refer to "children in a school class", that is, to both target children and partners. In general, a *social structure* is regarded as a set of persons who belong together for some reason. In this dissertation, I restrict myself to social structures that are psychologically relevant for classmates, that is, to those structures that are directly relevant to children's actual functioning and development in their school and school class settings.

An overview of my conceptual framework for social structures of classmates is presented in Figure 1.1. The main partition in this figure is given in columns, denoted with numbers in their upper left corners. The columns distinguish three formal and elementary social structures of classmates. Characteristics of these structures are described in rows, and are denoted with letters in their upper left corners. Cells in the figure are denoted with letter and number combinations that refer to rows and columns, respectively. The cells studied in this dissertation are shaded in Figure 1.1. Each cell is headed with a general descriptive term of the cell content. In the shaded cells, global labels of content domains under study in this dissertation are presented (denoted with "•").

In row A of Figure 1.1, I labelled the three social structures as the *individual*, the *relationship* and the *group*. As denoted in row B, the individual is a set of one class-mate, the relationship is a set of two classmates, and the group is a set of more than two classmates. In rows C to F, I arrange *attributes* of social structures (rows C and D) and *processes* of social structures (rows E and F).

In chapter 6, I will refer to the three social structures in the columns of Figure 1.1 as "levels". They refer to three aspects of children's social world that differ in their degree of complexity (cf. Rubin, Bukowski, & Parker, 1996). Here, all three social structures in the framework are viewed as formal entities, that may have several forms. These social structures exist during a substantial amount of time, that is — roughly speaking — at least several days or weeks.

As Figure 1.1 shows, I regard an individual as a social structure by itself. At this moment this may look a bit artificial; below, the benefits of this approach will become clear. Relationships and groups may be regarded as combinations of individuals, groups may also be regarded as combinations of relationships. In other words, the three social structures in my conceptual framework are at least partly arranged hierarchically.

A relationship is a set of two persons who know each other and influence each others' behavior. An example of a relationship is a friendship, a dyadic combination of two classmates that regard each other as friends. Another example of a relationship is a "nonfriendship", a dyadic combination of two classmates that do not regard each other as friends. Friendships and nonfriendships will be discussed extensively in chapter 5. In chapter 6, several types of bullying involvement relationships will be described; the most salient example is the relationship between a bully and a victim.

A group is a set of more than two persons that know each other and influence each others' behavior. In this dissertation the school class will be the only group struc-ture that is studied (in chapters 4, 5, and 6). Within school classes, all kinds of subgroups may be distinguished, such as same-level reading groups, sport and game teams, or cliques of friends. Such subgroups are not studied here.

FIGURE 1.1

A Conceptual Framework for Attributes and Processes
of Social Structures of Classmates

	SOCIAL STRUCTURE		
	-1 individual	-2 relationship	-3 group
A-	1	2	>2
B- number of classmates in the structure	B1	B2	B3
C- attributes of the structure	C1 person characteristics • personality • bullying involvement • depressive symptoms	C2 relationship characteristics • similarity • friendship • animosity/hostility	C3 group characteristics
D- attributes of a classmate in the structure	D1 person orientations • personality • bullying involvement • depressive symptoms	D2 persistent interactive orientations • friendship status • bullying involvement status	D3 persistent group orientations • behavioral style • sociometric status • bullying involvement status
E- processes in the structure	E1 behavior & perception	E2 interaction	E3 group activity
F- contribution of a classmate to the processes in the structure (performance)	F1 behavior & perception	F2 contribution to an interaction	F3 contribution to a group activity

I assume that all children in a school class know each other and influence each others' behavior. Therefore a school class of n children will contain (n·(n-1))/2 relationships, the number of possible dyadic combinations of classmates. For example, in a Dutch elementary school class of average size (n ≈ 25) there are 300 relationships.

ATTRIBUTES OF SOCIAL STRUCTURES AND THEIR PARTICIPATING CLASSMATES

I distinguish between attributes of social structures themselves, and attributes of the classmates that participate in those structures. I used the word "characteristics" to refer to attributes of structures (row C in Figure 1.1) and, and the word "orientations" to refer to attributes of classmates (row D).

ATTRIBUTES OF INDIVIDUALS

In individuals, these characteristics and orientations go together, since the individual is by definition the one and only participating classmate in this social structure. Therefore, the description of attributes is essentially the same in the two cells in Figure 1.1, although I labelled these attributes differentially as *person characteristics* and *person orientations*. In this dissertation I regard a classmate's person characteristics/orientations as a set of traits. Traits are considered to be enduring or continuous behavioral styles of a classmate that reveal consistency over a wide range of different situations and stability over time.

ATTRIBUTES OF RELATIONSHIPS

For relationships the distinction between attributes of the social structure, and attributes of the classmates that participate in that structure is useful. For example, animosity may be a *relationship characteristic*, an attribute of the relationship between two classmates. Within such a relationship classmate A may often bully classmate B. This is an attribute of classmate A, that is specific for this relationship. Classmate B may be victimized by classmate A, which is an attribute of classmate B, that is specific for this relationship. Such relation-specific attributes of classmates are labelled "*persistent interactive orientations*". This expression was proposed by Van Lieshout, Haselager, and Cillessen (1996) to refer to the consistency in individuals' interactions, and to the fairly stable person-specific behavioral orientations in their interactions.

The animosity example illustrates that persistent interactive orientations are at least partly relationship specific: They are defined only within the context of a specific relationship. Furthermore, the orientations of the two classmates involved are often associated to each other. Moreover, these orientations may be described differently, depending on the perspective of the relationship partner that is involved. For example, "being a bully" is a typical description of a classmate as an acting person, while in

"being a victim" the perspective is completely inverse: This is a typical description of a classmate as the object of the behavior of the partner in the relationship.

Both relationship characteristics of the dyad and persistent interactive orientations of participating classmates are regarded as sets of traits, analogous to a classmate's person characteristics/orientations. They refer to enduring or continuous interactive styles, that reveal consistency over a wide range of different situations, and stability over time. Relationship characteristics then, are traits of a dyad of classmates. Further examples of relationship characteristics are similarity of partners in a relationship (see chapter 4) or mutuality (Van Aken & Van Lieshout, 1991; Van Aken, Van Lieshout & Haselager, 1996). Persistent interactive orientations are traits of a classmate within a dyad. They may be regarded as the conjunction of a classmate's person orientations and characteristics, and the opportunities and constraints set by the relationship.

Persistent interactive orientations may be addressed towards both the interaction partner in the relationship, and to other classmates or other people outside the relationship. For example, a classmate may not tend to bully other children by itself, but join in bullying another child, when a friend tends to do this. A second example: a child may be involved in both a friendship and in a bully-victim relationship as a victim. The actual presence of the friend in a situation may prevent the child from being victimized by its bully. This example illustrates that relationships may influence each other. This brings me to the third social structure in my conceptual framework:

ATTRIBUTES OF GROUPS

For groups the distinction between attributes of social structures, and attributes of the classmates that participate in those structures is also useful. For example, cohesiveness may be a *group characteristic*. Group related differences between members may exist. For example, some children may be liked by most group members, while others may be liked by few group members. Such attributes of individual classmates in a group structure are labelled *"persistent group orientations"*.

As in relationships, persistent group orientations are at least partly relative: They are defined only within the context of a specific group. Furthermore, the orientations of the classmates involved are often related to each other. Moreover, these orientations may be described differently, depending on the perspective that is chosen. For example, "is a leader" or "always helps other children in class" are persistent group orientations in which children are described in terms of their own behavior towards their classmates. Sociometric status measures, such as acceptance and rejection, are perfect examples of persistent group orientations in which children are described in terms of the perception of their classmates.

Both group characteristics and persistent group orientations are regarded as sets of traits, analogous to a classmate's person characteristics/orientations. They refer to enduring or continuous group styles, that reveal consistency over a wide range of different social contexts. Group characteristics then, are traits of a group of class-

mates. They are not studied in this dissertation. Persistent group orientations are traits of a classmate within a group. They may be regarded as the conjunction of a classmate's person orientations and characteristics, that classmate's persistent inter-active orientations, and the opportunities and constraints set by the group. Persistent group orientations may be addressed both towards classmates within the group, and to other classmates or other people outside the group.

In sum, I distinguish between attributes of three social structures (charac-teristics) and attributes of classmates in these three social structures (orientations). This distinction results in six sets of attributes of social structures (cells C1 to C3, and D1 to D3). These sets of attributes are regarded as traits: They refer to enduring or continuous styles of a social structure or their participants, that reveal consistency over a wide range of different social contexts.

Now that this part of the social framework has been described, two general research questions addressed in this dissertation may be formulated: 1) How are sets of several attributes of social structures of classmates organized within cells? 2) How are sets of attributes from different cells related to each other? The study of these research questions in this dissertation is not intended to be exhaustive. Furthermore, it is restricted to the meaning and importance of social structures of classmates for social and personality development during the elementary school period.

PROCESSES OF SOCIAL STRUCTURES AND THEIR PARTICIPATING CLASSMATES

What is actually going on in a social structure is labelled as a social process or shortly as *process*. Since these processes are assumed to play a role in the emergence and change of attributes, they are included in the conceptual framework. Processes of social structures themselves are not studied in this dissertation. Here, they are discussed at a formal level, and rather global.

Analogous to the distinctions of attributes of social structures, I distinguish between processes of three social structures themselves (row E in Figure 1.1) and processes in the classmates that participate in those three structures (row F).

Processes in the three structures themselves (row E) are labelled as *behavior and perception*, *interaction*, and *group activity*, respectively. What a classmate is actually doing is labelled as performance, that is the contribution of the classmate to the process (row F). This performance may be described from three different perspectives, corresponding to the three elementary social structures of the conceptual framework. I labelled these three descriptions as *behavior and perception*, *contribution to an inter-action*, and *contribution to a group activity*. A reason for the distinction between three levels of performance, as described in row F is that the performance of individual classmates cannot be fully understood if the context of the relationship or the group is not taken into account. For example, the understanding of speech utterances of

children, expressed during a ring conversation in the classroom, usually requires knowledge of what is said earlier by other classmates.

THE CONCEPTUAL FRAMEWORK
AND SOCIAL DEVELOPMENT AND ADJUSTMENT

In the above I described attributes of social structures as traits. They are enduring and continuous, and reveal consistency over a wide range of different situations and stability over time. Processes of social structures may facilitate changes of these attributes. If such changes of attributes are mainly qualitative in their nature, if they are irreversible, and if they have some kind of temporal organization, then these changes may be labelled as "social development". Another category of changes is "social adjustment". Here changes of attributes are not necessarily qualitative in their nature, nor are they reversible, or have some kind of temporal organization. Incidental changes of attributes that do not affect their enduring and continuous character may be described or considered as variations.

Social development and adjustment may take place in all three social structures in the conceptual framework. For a developmental psychologist, changes of attributes of the individual structures are the most interesting. But relationships and groups may have their own development, that may not be fully understandable from the development of the participating classmates. Moreover, the development of higher order social structures may facilitate the development of lower order social structures. In other words, development may not only be facilitated by transactional processes between individual classmates, but also by transactional processes between an individual classmate and the higher order social structures in which this classmate participates.

OTHER CONCEPTUAL FRAMEWORKS

The conceptual framework described above is not the first attempt to describe and organize classmates' social structures, their attributes and their processes. Below, I shortly discuss two other approaches, the conceptual framework for distinct levels of social complexity by Robert Hinde (Hinde, 1976, 1979; Hinde & Stevenson-Hinde, 1986), and the social relations model by David Kenny and associates (Kenny & LaVoie, 1984; Kenny & Kashy, 1994)

As Rubin et al. (1996) have noted, the conceptual framework of Robert Hinde has been especially significant for the study of peer systems in the last 15 years. As in my conceptual framework, Hinde (1976) basically distinguished three discrete and hierarchically organized levels of social complexity: Interactions, relationships, and structure. Relationships are described by the content, quality and patterning of interac-

tions, structure is described by the content, quality and patterning of relationships. Elsewhere, Hinde and Stevenson-Hinde (1986) distinguished the three levels of individual characteristics, relationships and the social situation. The stable core concept in Hinde's work appears to be the relationship, whereas higher or lower ordered concepts may vary. Hinde did not explicitly distinguish between processes and attributes, as is done in my conceptual framework. Instead, Hinde and Stevenson-Hinde (1986) described a group of eight categories of dimensions of relationships that partly incorporates the distinction between attributes and processes [numbers and summarizing text between brackets added by me, GH]:

[1] The content of the relationship refers to what the individuals do together ... [2] The diversity of the interactions refers to the number of different things the participants in the relationship do together ... [3] The quality of the interactions within a relationship [referring to how individuals do things together] ... [4] The ... relative frequency and patterning of [constituent interactions in a relationship] ... [5] reciprocity versus complementarity of the interactions comprising the relationship ... [6] Intimacy, the extent to which participants in a relationship reveal all aspects ... of themselves to each other ... [7] Interpersonal perception, [involving] a number of dimensions differing in their requirements for cognitive complexity ... [8] Commitment [referring] to the extent to which partners accept their relationship as continuing indefinitely or direct their behavior towards ensuring its continuance or towards optimizing its properties ... (p. 28-32).

While Hinde's approach may be characterized as a cocktail of psychology and ethology, Kenny's social relations model (SRM) is better characterized as a mixture of (social) psychology and mathematics. The SRM-approach is effectively described by Kenny and LaVoie (1984) as follows: *"The study of two-person interaction requires an understanding of the full complexity that is involved. For instance, consider two persons, Peter and Paul, interacting. The behavior of Peter is a function of Peter himself, of his partner Paul, and of the relationship that Peter has with Paul. These three effects may be denoted as actor, partner, and relationship effects, respectively. The model that describes the dyad using these components is called the Social Relations Model"* (p. 142).

The explicit distinction between two positions of the individual, as actor or as partner, is a unique feature of the SRM-approach. Within our conceptual framework, both partner- and actor effects may be described as attributes of classmates in a relationship (cell D2). If these partner- and actor effects are generalized over relationships, then they may be described as attributes of individual (cell D1).

The social relations model itself does not include group phenomena. The model focuses on individuals and relationships. Nevertheless, group effects are usually controlled for in mathematical applications of the model, which implicitly acknowledges the importance of group phenomena. Furthermore, Kenny and Kashy (1994) have described a further extension of the model in which generalized partner effects are included. In this way, they actually incorporated group effects in the social

relations model, although these were restricted to perception effects. The mathematical elaboration of the model allows for the estimation and testing of the size of the components of the model, which is a major advantage.

The conceptual frameworks of Hinde and Kenny have several aspects in common with the framework described above. These and other models do not simultaneously use explicit distinctions between attributes versus processes, and properties of the social structure versus properties of persons participating in these structures.

OVERVIEW OF THE PRESENT THESIS

After this introductory chapter, this thesis continues with a chapter that contains a complete overview of data collection and elementary data processing for the studies reported here. This second chapter is intended to be a report about the third measurement wave of the longitudinal project about peer relationships of the department of developmental psychology of the university of Nijmegen, and is primarily written for documentation purposes.

This descriptive chapter is followed by four empirical studies. In the first empirical study (chapter 3) I describe and validate a method to measure the Big Five personality factors in children and adolescents, using principal component analyses of Nijmegen California Q-Set descriptions (NCCQ). This chapter concerns attributes within the individual social structure in my conceptual framework (i.e., cells C1 and C2 in Figure 1.1). In other words, it is a study on the structure of person characteristics and orientations. This study has already been published elsewhere (Van Lieshout & Haselager, 1994). An earlier version of this paper was presented at the Symposium 'The Development of the Structure of Temperament and Personality from Infancy to Adulthood' at the NIAS, in Wassenaar, The Netherlands (Van Lieshout, Haselager & Van Lier, 1991)

Chapter 4 is a longitudinal and correlational study about the development of the relation between sociometric status and personality across middle childhood. This chapter concerns the relation between attributes of classmates in the individual social structure (cells C1 and D1), and attributes of classmates in the group social structure (cell D3). In other words, it is a study on the relation between person characteristics/orientations and persistent group orientations. An earlier version of this chapter was presented at the biennial meetings of the "SGW-onderzoeksgroep ontwikkelingspsychologie" in Dalfsen, the Netherlands (Haselager, Van Lieshout & Cillessen, 1995). This chapter is intended to be published as a journal article.

Chapter 5 is a cross-sectional study about similarity of friendship versus nonfriendship relationships. They are compared with each other on similarity measures for expression and perception of behavior styles and peer sociometric status. This chapter concerns the relation between attributes of relationship social structures (cell C2), attributes of classmates in the relationship social structure (cell D2), and

attributes of classmates in the group social structure (cell D3). In other words, it is a study on the relations between relationship characteristics, persistent interactive orientations, and persistent group orientations. This chapter is submitted as a journal article, and is now in the process of adaptation after a first review (Haselager, Hartup, Van Lieshout & Riksen-Walraven, 1996).

Chapter 6 is a cross-sectional study about bullying and victimization in middle childhood. I describe and validate a three-level model for the classification of children's bullying involvement status in school classes. Additionally, I describe and discuss current and earlier differences in behavior and personality of different types of bullying-involved children. This chapter concerns relations between four cells of the conceptual framework: attributes of relationship social structures (cell C2), attributes of classmates in the individual social structure (cells C1 and D1), attributes of classmates in the relationship social structure (cell D2), and attributes of classmates in the group social structure (cell D3). In other words, it is a study on relations between relationship characteristics, person characteristics/orientations, persistent interactive orientations, and persistent group orientations. This chapter is a totally rewritten and extended version of a paper presented at the biennial meetings of the ISSBD in Seville, Spain (Haselager & Van Lieshout, 1992), and is intended to be published as a journal article.

Chapter 7 is a general discussion. It contains a recapitulation of results, a discussion of theoretical and practical consequences, limitations of the research presented, directions for further research and for development of applications. The thesis ends with summaries in English and Dutch.

This thesis is set up as a collection of empirical articles. Therefore, the four main articles in chapters 3 to 6 may be read and studied separately and independently, and in any order the reader prefers. As a consequence of this set up, there is considerable overlap of the method sections of the empirical chapters, and, therefore, redundancy of information in these sections. This redundancy is enlarged by chapter 2, that contains a complete overview of data collection and elementary data processing. I suggest to readers to skip, or only read shallowly, either chapter 2 or those parts of method sections of the empirical articles that concern data collection.

PROJECT OVERVIEW

This dissertation is written as part of a longitudinal project of the department of developmental psychology of the University of Nijmegen. This chapter is intended to be a report of the third measurement wave[1] of this project, and is primarily written for documentation purposes. Another purpose is to provide background information about samples and measures that are used in this dissertation. The chapter has four parts. First, a description of the total project and a summary of the first two measurement waves is presented. Second, Wave 3 samples and data collection procedures are extensively reported. Third, measures collected in Wave 3, and other variables and constructs used in this dissertation, are extensively described and discussed. Finally, the representativeness of the Wave 3 samples is discussed.

Samples and variables described in this chapter were used in the four empirical studies that are described in the following chapters. In Chapter 3, some samples were used that were not part of the longitudinal project. These samples are not described here.

PROJECT DESCRIPTION
AND WAVE 1 AND WAVE 2 SUMMARY

Basically, the project has a longitudinal cohort-sequential design: Two cohorts of boys from 2 school grade levels participated in three consecutive measurement waves conducted within a period of 5 years. Figure 2.1 gives an overview of the design of the project. As can be seen in Figure 2.1, the three waves of data collection in this project cover the entire elementary school-age period.

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[1] Following project conventions, the word "wave" is used in this dissertation, to refer to a limited period of time within a school year, in which data are collected at several instances. The word "time", often used in longitudinal projects, was considered not appropriate. In the first two waves of this project each "wave" included several "times".

FIGURE 2.1
Design of the Project
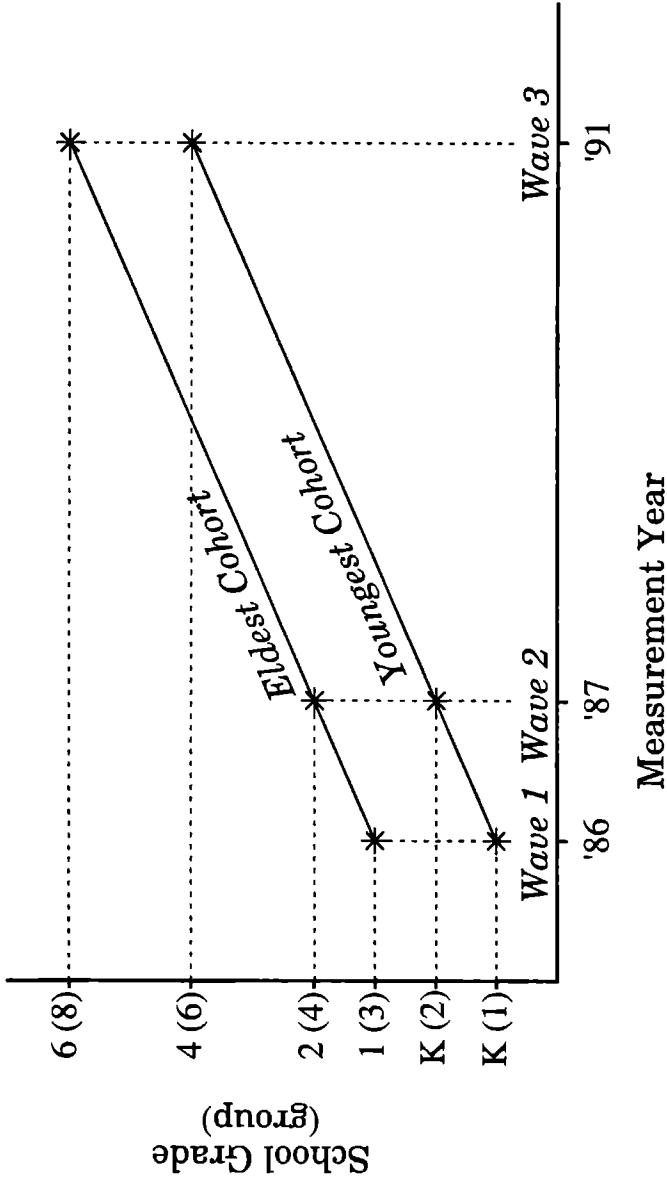
In each wave, the classmates of boys in this longitudinal sample also participated in parts of the project, resulting in three additional, partly independent cross-sectional samples. In Figure 2.2 the relation between the longitudinal and cross-sectional sample is visualized. The first two measurement waves of the project are extensively described by Cillessen (1991, chapter 2). A brief summary of this chapter is given here. Both waves had essentially the same set-up, similar data were collected twice in the same sample. Each wave had two phases, a "sociometric screening phase" and a "play session phase".

The sociometric screening phase of Wave 1 was organized in January and February of 1986. The sociometric status (see below for the measurement procedure) was determined of 781 boys at 35 schools, in 54 kindergarten groups (corresponding with group 1 of the current Dutch "basisschool"), and in 43 first grade groups (corresponding with group 3 of the current Dutch "basisschool"). From this large sample 231 boys were selected because of their sociometric status.

Boys with a rejected or popular sociometric status type were deliberately over-represented (35 % and 38 %, respectively), average status boys were underrepresented (22%), the percentage of neglected boys was fairly usual (5 %), while controversial boys were not included. Reasons for the composition of this initially stratified sample are discussed in Cillessen (1991, p. 12). Other reasons for selecting these boys were their acquaintedness versus unacquaintedness with other boys for the purposes of the play sessions, grade level, and informed consent of parents. This sample of 231 boys constitutes the core longitudinal sample of the project.

In the Wave 1 play session phase, these 231 boys were arranged in 77 play groups of three persons ("triads"), according to their sociometric status and acquaintedness versus unacquaintedness. These play groups participated in four consecutive play sessions (separated by a 1-week interval). Each play session consisted of three phases. The middle phase was the actual triad play period, lasting 45 minutes. The play-period consisted of three or four game types: A cooperative game, a competitive game, an unstructured game, and — in sessions 1 and 3 — a reward division game. In each of the four play sessions, a different game was used for each game type. All play sessions were recorded on videotape. Before and after this play-period, children were individually interviewed about their group experiences in a 15-minute interview.

The sociometric screening phase of Wave 2 took place in February and March of 1987. The longitudinal sample now comprised 228 (99%) of the boys from the Wave 1 sample, who were now in 102 classes of 45 schools. The sociometric status of all boys in the 102 classes was determined. In this wave the sociometric interview was extended with three behavioral nominations (starts fights, is shy and withdrawn, cooperates and shares).

FIGURE 2.2
Venndiagram of Compilations of Children in
Cross-sectional and Longitudinal Samples
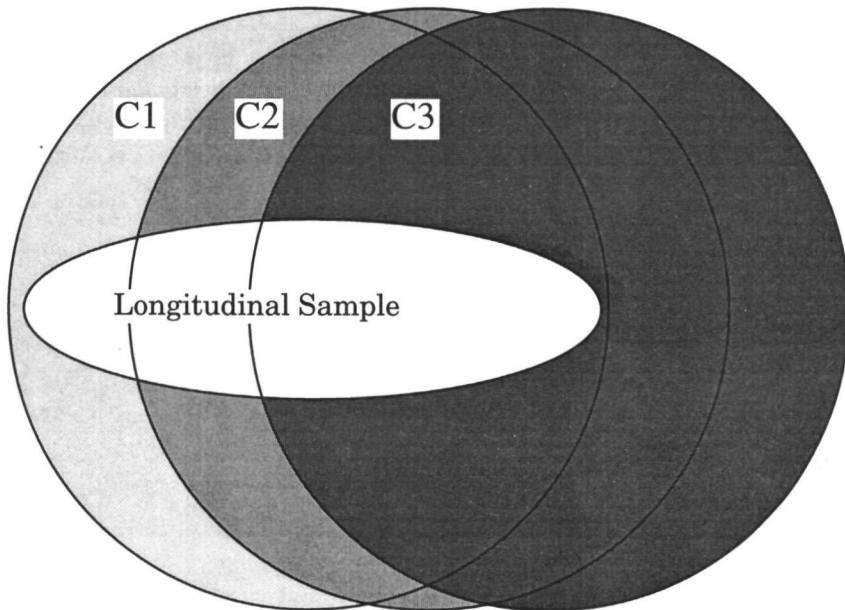
Note. Each element denotes a sample, the size of elements
does not correspond with sample size;
C1, C2, C3: Cross-sectional samples in Wave 1 to 3.

In the Wave 2 play session phase, 210 (91%) of the boys could be arranged in the same play group triads as in Wave 1. The remaining 18 boys did not participate in this phase. Again these play groups participated in four weekly play sessions, with basically the same set-up as in Wave 1.

Wave 1 play session behavior was observed from videotape with a detailed coding system, in which 12 behavior categories were coded on a 10-second interval basis. The videotapes of Wave 1 and 2 play sessions were also evaluated with a global rating scale for prosocial versus antisocial behavior. These ratings were given for each separate game in a play session. Both observation systems were oriented on dyadic behavior: codes and ratings were assigned for behavior of a boy towards one specific other member of the triad. Additionally, in Wave 2, play-session examiners systematically rank-ordered triad members on seven behavior categories, during the recording of the play sessions.

In Waves 1 and 2 the teachers of the boys in the longitudinal sample were asked to describe the boys with a personality Q-sort, and to fill in a problem checklist about them.

DATA COLLECTION IN WAVE 3, SAMPLE AND PROCEDURES

Compared to the first two waves, Wave 3 had a different, more constrained set-up as it was organized as a low-budget follow-up. In this paragraph we give a description of Wave 3 data collection procedure, that is mainly based on an internal report by Van Eijck (1991).

Wave 3 took place between March and July of 1991 and also had a sociometric screening phase. In addition to the sociometric questions, children completed two self report questionnaires about bullying involvement and about depressive symptoms. Wave 3 had no play session phase. Instead, personality Q-sort descriptions about boys in the longitudinal sample were obtained, filled out by the boys themselves, and by their mothers and teachers.

THE WAVE 3 LONGITUDINAL SAMPLE

The original longitudinal sample consisted of 231 boys. In Wave 3, 190 of them participated again (82 %). Attrition was caused by various reasons: One boy refused to participate again. Parents of one other boy refused to give their informed consent. Six boys were excluded because they already received secondary education. Fifteen boys did not participate again for organizational and logistic reasons: 5 boys had moved outside the region (2 of them to foreign countries), of 6 boys we were not able to trace the home addresses, and of 4 boys we found their home addresses too late to organize

their participation again. Eighteen boys did not participate again because their 7 schools (11 % of all schools) refused cooperation: 4 schools (having 12 target boys) did not want to reserve time for our project in their planning, one school (2 target boys) had objections against the sociometric procedure, one school (2 target boys) refused for internal reasons, and in one school groups 7 and 8 were allowed to participate, but younger groups (2 target boys) were not, because the school management team feared "overloading" the children in these groups.

The 190 boys that actually participated in Wave 3 were in 102 school classes spread across 59 different schools. For the longitudinal sample, informed consent was obtained from the boys themselves, from their parents, from the school principal, and from the classroom teacher. Other characteristics of this sample are discussed below.

THE WAVE 3 CROSS-SECTIONAL SAMPLE

The Wave 3 cross-sectional sample consisted of all children in the 102 school classes of the boys in the longitudinal sample. These school classes contained 2591 children, 2521 of whom (97 %) filled out one or more of the questionnaires. The remaining 70 children did not participate for reasons that were not systematically registered, but mainly because they were absent. Other characteristics of this sample are discussed below.

CLASSROOM DATA COLLECTION PROCEDURE

A classroom data collection session was arranged separately for each group. The session started with a brief introduction and a class instruction, given by a trained examiner. First, consent for participation of all children in the class was obtained. Second, confidentiality was explicitly guaranteed. Then, every child in class was given a booklet, that consisted of three parts: A bullying involvement questionnaire, a sociometric questionnaire, and a depressive symptoms questionnaire. The questionnaire booklet started with questions about school-name, grade, current date, date of birth, and gender of respondent. These first questions were filled in step by step, under the guidance of the examiner, by all children in the classroom at the same time. Then a definition of "bullying other children" (Olweus, 1989) was given. Next, children completed the questionnaires on their own. In most classrooms, children started with the bullying involvement questionnaire, then answered the sociometric questions, followed by the depressive symptoms questionnaire. On a few occasions children filled in the sociometric questionnaire first, when it was expected that children might not be able to answer the complete booklet, especially in combination classrooms with relatively many young children, or in schools for special education. Children filled out the questionnaire-answers themselves, in principle without any help, although they were

allowed to ask questions individually to the examiner or to the classroom teacher during the session. The data collection session was ended after 75 minutes. The majority of the participating children completed all questions within this time. Children who had not yet completed the booklet were instructed to stop with their task.

The classroom sessions were led by a trained examiner, sometimes with the assistance of a second examiner. Examiners (one male, one female), were master's degree students in developmental psychology, and they had been trained for data collection by the investigator. Usually, the classroom teacher was also present during the session.

PERSONALITY DATA COLLECTION PROCEDURE

Boys in the longitudinal sample were asked to describe themselves with a personality Q-sort (see below for a description of this instrument). Mothers were asked to describe their sons with the same instrument. These Q-sorts were filled out at school, usually after the classroom data collection. One or more boys and their mothers were brought together in a separate room and received instructions simultaneously. They then individually provided a Q-sort-description, receiving help of a trained examiner, if necessary. It usually took children and mothers 50 to 90 minutes to complete the Q-sort. Seven children did not complete the Q-sort because the task appeared too difficult and they ran out of time. About 15 children needed intensive individual assistance with this task: almost all items of the instrument were read aloud and explained to them. Some mothers who were not able to come to school provided a Q-sort-description at home at a moment of their own choice. Teachers of the boys in the longitudinal sample were also asked to describe these children with the same Q-sort, at a moment of their own choice.

MEASURES AND CONSTRUCTS, AND SOME OF THEIR PSYCHOMETRIC PROPERTIES

In this paragraph we extensively describe the four instruments used to collect data in Wave 3: the bullying involvement questionnaire, the sociometric questionnaire, the depressive symptoms questionnaire, and the personality Q-sort. Additionally we also describe the Wave 1 and 2 measures that are used in the empirical studies of this dissertation (chapter 3 and 4). In most cases these are the measures of constructs that were assessed in all three measurement waves. Validity and reliability of measures used are discussed.

Two instruments, the bullying involvement questionnaire and the sociometric questionnaire, had not been used in earlier research, at least not in the specific

language and configuration of this project. Concurrent to our project, however, Mooij (1991) used the same two questionnaires in a national survey on bullying in Dutch elementary schools. In the forthcoming paragraphs we compare the psychometric properties of the questionnaires in our sample with the properties reported by Mooij (1991).

BULLYING INVOLVEMENT

To assess self-reported bullying involvement, we administered the junior version of the bully/victim inventory developed by Olweus (1989), in the Dutch translation of Liebrand, Van IJzendoorn, and Van Lieshout (1990). The translated version is printed in Mooij (1991). The bully/victim inventory was primarily developed to collect detailed information about bullying involvement in school classes for intervention purposes. From a test-construction perspective, the questionnaire may be described as "hybrid" as it includes a combination of various response formats. The Dutch junior version has 37 multiple choice items, with between 3 and 7 answering categories per question. Most of these items are constructed as Likert-scale-items. In some items the child is given the opportunity to give an explanation.

SCALES IN THE BULLYING INVOLVEMENT QUESTIONNAIRE.
Olweus (1989) developed several scales with items from this questionnaire. A first scale is *Exposure to Direct Bullying/Victimization*, and has two versions. In our sample the five and six item version had an internal consistency of .77 and .75 respectively (Cronbach's α). A second scale is called *Exposure to Indirect Bullying/Social Isolation*, and also has two versions. In our sample the four and five item versions both had an internal consistency of .58. Olweus (1989) recommended to combine these two scales to a *General Bullying/Harassment Scale*, because these scales "are likely to be considerately intercorrelated" (p. 5). In our sample the intercorrelations for the short and long versions were .51 ($\underline{n}$ = 2160, $\underline{p}$ < .001) and .48 ($\underline{n}$ = 2122, $\underline{p}$ < .001) respectively. The internal consistency of the short (9 items) and the long (11 items) version of the General Bullying/ Harassment Scale were .79 and .78, respectively. The scale *Bullying Other Students* has six items, we found an internal consistency of .77. The scale *Negative Attitude to Bullying* has three items and an internal consistency of .54. The scale *Bullying the Teacher* has two items and an internal consistency of .69. Mooij (1991) reported internal consistencies of about the same magnitude for these scales. In general, the internal consistency of these scales was not extremely high, but acceptable for our purposes.

FINDING BULLIES AND VICTIMS.
Two items from this questionnaire are often used to identify children as victims or as bullies (Olweus, 1989, 1993a; 1993b; Mooij, 1991; Whitney & Smith, 1991). Item

7 in the junior version asks: "How often have you been bullied in school this term?" (In Dutch: "Hoe vaak hebben andere kinderen jou dit schooljaar getreiterd?"). Children that answer "now and then" (in Dutch: "regelmatig), "about once a week" ("ongeveer 1 keer per week"), or "several times a week" ("verschillende keren per week"), are usually classified as victims of peer bullying. Item 26 in the junior version asks: "How often did you participate in bullying other students in school?" (In Dutch: "Hoe vaak heb je zelf meegedaan met het treiteren van andere kinderen op school?"). Children that answer "now and then", "about once a week" or "several times a week", are usually classified as bullies.

NONRESPONSE IN BULLYING INVOLVEMENT QUESTIONNAIRE.

Children were allowed not to answer questions on this bully/victim inventory. 1444 children (57 %) gave a valid answer on all 37 items, 78 children (3 %) gave no valid answer at all. The average number of answered items was 34.8 (out of 37). Scale scores are computed by averaging item scores, as they were assigned to answering categories by Olweus (1989). To compensate for missing values, we used only the long versions of scales and allowed one missing item per scale. In this way we were able to compute scores on all scales for 2270 children (90 %).

SOCIOMETRIC QUESTIONNAIRE

In Wave 3, a written sociometric questionnaire was administered in class. After a brief instruction children were asked to answer 12 sociometric questions. Table 2.1 gives the text of these questions in Dutch and their English translation. All children were given the order of questions used in Table 2.1. For each question, children were asked to write down the names of three or fewer children. The names of children that could be nominated, all children in class, were written on the blackboard beforehand. Within-sex and cross-sex nominations were allowed; self nominations were not. The first two questions concerned peer acceptance and rejection. Six questions, with numbers 3, 4, 6, 7, 8, and 9 in Table 2.1 concerned peer reported social behavior. These items have proven to discriminate between sociometric status groups (Coie, Dodge, & Coppotelli, 1982). The sociometric questions about Cooperation (number 3), Starting Fights (number 4), and Shyness (number 7) were also used in the classroom sociometric screening phase of Wave 2, where they were added to the individual sociometric interviews. In Wave 2, the number of children that was allowed to be nominated was not restricted to three (cf. Cillessen, 1991). Two other Wave 3 sociometric questions, (number 5 and 11) concerned bullying involvement as perceived by peers. In question 10, classroom friends were traced. Question number 12 concerned peer-perceived sickness and physical complaints.

TABLE 2.1
Overview of Wave 3 Sociometric Interview Questions

Question Number	Question text, original Dutch formulation	Question text, English translation
1	Welke drie kinderen uit jouw klas vind jij *heel erg aardig?*	Which three children in your class do you *like most?*
2	Welke drie kinderen uit jouw klas vind jij helemaal *niet aardig?*	Which three children in your class do you *like least?*
3	Welke drie klasgenoten houden veel rekening met andere kinderen en kunnen goed met anderen *samenwerken?*	Which three classmates are very considerate with other children and are very *cooperative?*
4	Welke drie klasgenoten *maken* vaak *ruzie* met andere kinderen?	Which three classmates often *start fights* with other children?
5	Welke drie klasgenoten worden vaak door andere kinderen *gepest* en *getreiterd?*	Which three classmates are often *bullied, teased,* and *picked on* by other children?
6	Welke drie klasgenoten willen dat *iemand komt helpen* ook als ze zelf nog niet geprobeerd hebben een oplossing te vinden?	Which three classmates want *someone to come to help them,* even if they did not try to find a solution themselves?
7	Welke drie klasgenoten zijn erg *verlegen?*	Which three classmates are very *shy?*
8	Welke drie klasgenoten *staan* altijd *klaar om je te helpen* als je er om vraagt?	Which three classmates always *offer to help you,* if you ask for it?
9	Welke drie kinderen *verstoren* regelmatig de gang van zaken en sturen alles in de war?	Which three children *disturb* the way things usually go and disrupt everything?
10	Welke drie kinderen uit de klas zijn je *vrienden(innen)?*	Which three children in class are your *friends?*
11	Welke drie kinderen uit de klas *pesten* en *treiteren* regelmatig andere kinderen?	Which three children in class often *bully* other children, *pick on* them and *tease* them?
12	Welke drie kinderen hebben vaak *lichamelijke klachten?* Ze hebben last van hoofdpijn, buikpijn of misselijkheid; ze voelen zich vaak niet zo lekker.	Which three children often have *physical complaints?* They often have a headache, tummy-ache, or sickness; often, they don't feel very well.

Note. Italicized words were underlined in the original booklet.

SOCIOMETRIC DATA PROCESSING.

Raw scores for sociometric questions were computed by counting the number of times children were nominated by their classmates, using the computer program SOCSTAT (Thissen-Pennings & Ten Brink, 1994). The main purpose of this program is to transform data files with *given nominations* of classmates into data files with numbers of *received nominations* of classmates. With this program it is also possible to compute scores for children that did not answer sociometric questions themselves, but were allowed to be nominated.

Usually these are the children that were absent when the questionnaires were filled out. After computing the raw number of received nominations, the program standardizes these raw scores within classes to z-scores or probability scores. Probability scores express the chance of receiving a given number, or fewer, nominations in a class, assuming a generalized binominal distribution of the nominations (Ten Brink, 1985; cf. Newcomb & Bukowski, 1983). Both the z-score- and probability-transformation were computed separately for each school class, in order to correct for distribution differences caused by circumstances like class size differences. The standardization algorithm corrects for absent group members and for variable numbers of given nominations per respondent (Ten Brink, 1985). Additionally, the program is able to trace mutual nominations and cliques, and to classify children's sociometric status type, according to several theoretical models, including the model of Newcomb and Bukowski (1983) and the model of Coie et al. (1982).

In Wave 1 and Wave 2, acceptance and rejection scores had also been collected, although with a slightly different method: these measures were gathered in individual interviews using the method of Asher, Singleton, Tinsley, and Hymel (1979). This sociometric method uses a 3-point rating scale represented by three boxes showing either a sad, neutral or happy face. Children had been instructed to rate another child by pointing to the happy-face box when they liked the child, to the sad-face box when they did not like the child, or to the neutral-face box when they did not know whether they liked or disliked the child. All children in class rated all boys in their class in random order. Before rating a boy, the child had been asked to identify the rated boy by singling him out on a class group photograph. Raw scores for acceptance and rejection had been computed by counting the number of times a boy was rated by classmates as liked or disliked, respectively, and converting these raw scores to probability scores, analogous to the procedure described above.

DETERMINATION OF SOCIOMETRIC STATUS.

In all three waves raw scores for social preference and social impact were computed by subtracting and summing up, respectively, the raw acceptance and rejection scores. In all three waves, the probability scores (p-scores) for acceptance, rejection and social impact were used to determine the sociometric status type of children, following the criteria of Newcomb and Bukowski (1983):

TABLE 2.2

Non Respons in Wave 3 Sociometric Interview

Question Number	Question Description	Average number of nominations given	Respondents that gave no nomination at all to the question	
			Number	%*
1	Like Most	2.8	50	2
2	Like Least	2.3	359	14
3	Is Cooperative	2.4	338	13
4	Starts Fights	2.3	373	15
5	Is a Victim	2.0	414	16
6	Seeks Help	1.3	1119	44
7	Is Shy	1.8	665	26
8	Offers Help	2.3	304	12
9	Disturbs	1.8	698	28
10	Is a Friend	2.7	120	5
11	Is a Bully	1.9	638	25
12	Has Physical Complaints	1.3	904	36
	Average	2.5	498.5	20

Note. * % of number of respondents in sociometric interview ($\underline{n}$ = 2511).

Children were considered *Popular* if they had a rare acceptance p-score and a rejection score below the mean; *Rejected* if they had a rare rejection p-score and an acceptance p-score below the mean; *Controversial* if they had either a rare acceptance p-score and a rejection p-score above the mean, or a rare rejection p-score and an acceptance p-score above the mean; *Neglected* if they had a below chance social impact p-score; otherwise, children were considered *Average*. A p-score was considered as "rare" if it exceeded .95, and as "below chance" if it did not exceed .05.

LATENT STRUCTURE OF THE WAVE 3 SOCIOMETRIC QUESTIONNAIRE.

Rooyer (1993) studied the factor analytic structure of eight questions about social behavior and bullying involvement, from the sociometric questionnaire used in this sample. Using principal component analysis followed by varimax rotation she found three factors. The first factor was labelled Antisocial Behavior and had high (<.50) loadings on sociometric questions 11 (Bullies), 4 (Starts Fights), and 9 (Disrupts). The second factor was labelled Prosocial Behavior and had high loadings on questions 8 (Offers Help), and 3 (Cooperates). The third factor was labelled Social Withdrawal Behavior and had high loadings on questions 6 (Seeks Help), 5 (is Victimized), and 7 (is Shy). Mooij (1991) factor analyzed all 12 sociometric questions of this same sociometric questionnaire in a different sample. Using the same method as Rooyer, he found essentially the same factor structure, with question 2 (Liked Least) contributing to the first factor and the third factor, questions 1 (Liked Most) and 10 (Is a Friend) contributing to the second factor. One exception is the shyness-item. In Rooyer's structure this item mainly loaded on factor 3, in Mooij it mainly loaded (negatively, i.e. not being shy) on factor 1. In their review of social developmental pathways Hartup and Van Lieshout (1995) distinguished three central behavioral orientations "Antisocial Behavior", "Behavioral Inhibition and Social Withdrawal", and "Social Responsibility". Their distinction fits rather well with the two factor solutions, which supports the construct validity of the sociometric questions.

NONRESPONSE IN SOCIOMETRIC QUESTIONNAIRE.

Children were explicitly asked to nominate three classmates on each of the 12 questions of the sociometric questionnaire, but were allowed to nominate less, or even none. Table 2.2 shows the average number of given nominations and the number and percentage of children in the total sample of respondents that did not give any nomination at all, separately for each question. A group of 679 children (27 %) gave at least one valid nomination on all 12 sociometric questions, 15 children (0.6 %) gave no valid answer at all. The average number of given nominations across all twelve questions was 2.5. The average number of given nominations on a single question might be considered as an indicator of the relative difficulty of that question: the lower this number, the more difficult it was for the respondent to nominate a classmate. Table 2.2 illustrates that the questions differ in their degree of difficulty. The lowest numbers of nominations were given on "Seeks Help" and "Has Physical Complaints",

suggesting that children have the most difficulties in nominating classmates with these characteristics. The percentage of children in the total sample that did not give any nomination at all gives a weak impression of the reliability of the sociometric question: the higher this percentage, the fewer respondents have contributed to the computation of numbers of received nominations, the lower the reliability. Table 2.2 illustrates that the questions differ in their number of non answering respondents. "Seeks Help" and "Has Physical Complaints" have the most non answering respondents, 44 and 36 % respectively. This is in clear contrast with "Liked Most" and "Is a Friend", that have only 2 and 5 % of the respondents not nominating any classmate. In general the level of these percentages is low, the average is 20 percent. Adequate reliabilities of this kind of nomination techniques have been reported in many studies over the years (cf. Cillessen & Ten Brink, 1991; Thompson, 1960).

DEPRESSIVE SYMPTOMS QUESTIONNAIRE

In Wave 3 an item subset was used of the Depression Inventory for Children (DVK; "Depressie Vragenlijst voor Kinderen") developed by De Wit (1985, 1987). This self-report questionnaire consists of 107 true-untrue-questions. Most of the items are only verbal, 12 questions use pictures. The complete version also includes 20 dummy items. In order to limit the amount of time to be used for the classroom session we only used four (out of ten) scales, thereby using only 46 (out of 107) items. The selected scales are assumed to measure core symptoms of childhood depression.

SCALES IN THE DEPRESSIVE SYMPTOMS QUESTIONNAIRE

Used scales were: *Depressive mood* (5 items; "I often feel unhappy and sad nowadays"; Cronbach's α = .62), *Decrease, delay, or regression of functions and behavior* (14 items; "Everything I do goes much slower than before"; α = .77), *Negative self evaluations* (15 items; "When other children don't play with me, I think they don't like me"; α = .74), and *Physical complaints* (12 items; "I often have a headache"; α = .74). The sum score of the items in these four scales was used as an indicator of the degree in which a child has depressive symptoms (46 items, α = .90). De Wit (1987) reported internal consistencies of about the same magnitude on these scales in the manual of the test. In general, the internal consistency of these scales was considered acceptable.

NONRESPONSE IN THE DEPRESSIVE SYMPTOMS QUESTIONNAIRE.

Children were allowed not to answer questions of the depression questionnaire. 1488 children (59 %) gave a valid answer on all 46 items, 121 children (5 %) gave no valid answer at all. The average number of answered items was 41.6 (out of 46). Scale scores were computed by counting the number of answers that indicate a depressive symptom, usually the number of "true-answers". A minority of questions is inverted;

here an "untrue-answer" indicates a depressive symptom. To compensate for missing values, we allowed one third of the items missing per scale. If a child had not answered more than one third of the items, a scale score was not computed for this child. In this way we were able to compute scores on all scales for 2222 children (88 %).

PERSONALITY

In all three waves person descriptions of boys in the longitudinal sample were collected, using the California Child Q-set (CCQ; Block & Block, 1980), in a Dutch adaptation (NCKS; Van Lieshout, Riksen-Walraven, Ten Brink, Siebenheller, Koot, Mey, Janssen, & Cillessen, 1986). These person descriptions were given by teachers (all waves, usable completed CCQ's in subsequent waves: 167, 130, 56), mother, and self (Wave 3 only, usable completed CCQ's 167 and 177, respectively).

The CCQ consists of 100 statements describing a wide range of behavior and personality characteristics. Each statement is printed on a separate card. The 100 cards were sorted by the respondent into nine categories ranging from "least characteristic" (Category 1) to "most characteristic" (Category 9), using a rectangular 9-point forced distribution. Eleven statements were placed in each category except for Category 5, in which 12 statements were placed. This distribution of statements over categories facilitates an ipsative sorting strategy: The respondent has to compare statements about one person with each other, instead of comparing this person with different other persons. The number of the category in which an item is arranged, is used as the item score.

PERSONALITY DESCRIPTION SCALES
From these CCQ person descriptions, individual scale scores for the Big Five personality dimensions (cf. Goldberg, 1990, 1993; John, Angleiter & Ostendorf, 1988) were computed, independently for each wave and rater, using a method developed by Van Lieshout and Haselager (this volume, chapter 3; 1994). These 'Big Five' dimensions have been numbered and labeled as (I) Extraversion, (II) Agreeableness, (III) Conscientiousness,(IV) Emotional Stability, and (V) Openness to Experience. Scale scores were computed by averaging item scores with high loadings on factors in a principal component analysis, that could be interpreted within the five factor model. Table 2.3 presents the internal consistency, measured with Cronbach's α, for each rater in each wave. In general, the internal consistency of teacher and mother scales was considered acceptable. The self ratings appear to have rather low internal consistencies, suggesting that at the end of elementary school boys are not yet able to describe themselves reliably in terms of the five factor model.

TABLE 2.3
Internal Consistency (Cronbach's α) of Five Factor Model Scales, Computed from CCQ Person Descriptions

Scale in the Five Factor Model	Number of items	Wave 1 Teacher	Wave 2 Teacher	Wave 3 Teacher	Wave 3 Mother	Wave 3 Self	Average
I Extraversion	9	.80	.73	.75	.59	.28	.63
II Agreeableness	14	.92	.92	.88	.84	.67	.85
III Conscientiousness	8	.84	.86	.86	.78	.44	.76
IV Emotional Stability	11	.85	.84	.82	.82	.66	.80
V Openness to Experience	7	.79	.79	.80	.68	.34	.68
Average		.84	.83	.82	.74	48	.68
n		167	130	56	167	177	

Table 2.3 also suggests differences between factors in the internal consistency of self descriptions. For example, self described Agreeableness is much more homogeneous than self described Extraversion.

REPRESENTATIVENESS OF SAMPLES

In this paragraph we present characteristics of the longitudinal and cross-sectional samples in Wave 3. This paragraph has two related purposes. First, we describe these samples as accurately as possible. Second, we examine the generalizability of results in these samples to populations.

WAVE 3 CROSS-SECTIONAL SAMPLE CHARACTERISTICS

The sample consisted of 1363 boys (53 %) and 1228 girls (47 %). The mean age of children in this sample was 11 year and 0.0 months (SD 1 year and 2.5 months). Participating schools in this sample were found in the *geographic region* of Nijmegen and Arnhem, two moderate size cities, and surrounding towns, all in the east of the Netherlands. Information regarding *ethnic background* of the children was not systematically collected. School census records about this region of the Netherlands and about the school season 1990—1991 (Mulder, 1993) revealed that 89.5 % of the children attending elementary schools in Wave 3 were Dutch/Caucasian. Ethnic minorities included children whose families originally lived in Surinam (0.8 %), the Netherlands Antilles (0.1 %), Moluccas (Indonesia, 1.2 %), Turkey (1.3 %), Morocco (1.2%) and other minorities (5.9 %). Information regarding *socio-economic status* was not systematically collected. Cillessen (1991) described the elementary schools that were used to compose the Wave 1 sample as "serving lower and middle-class populations" (p. 11).

School types: Eleven schools (including 7 % of the children in the sample) were schools for special education, the other 91 (including 93 % of the children in the sample) were regular elementary schools. The average *class size* was 25.4 pupils (range 13 — 40). *School grade levels*: The project design (see Figure 2.1) prescribes that in Wave 3 respondents should be found in grades 6 and 8. However, respondents were found in grades 2 to 6 (Groups 4 to 8 in the Netherlands elementary school system) and all grades in between. There are several reasons for this dispersion phenomenon. First, already in Wave 1 there was a considerable variation in age within the two cohorts, which is common for kindergarten and lowest grades in Dutch elementary schools. This may have led to a scattering over grade levels, later on in school career. Another reason for the dispersion phenomenon is that boys in the longitudinal sample may have been retained. Furthermore, 39 class-groups were actually combinations of two or more grade-levels, in all kinds of combinations. In the

other 63 "single grade groups" there were 7 grade-5 groups, 14 grade-6 groups, 17 grade-7 groups, and 22 grade-8 groups.

Bullying Involvement: 19 % of the children described themselves as victims of bullying. Mooij (1991) reported a higher percentage: 23 % victims in elementary schools, χ^2 (1, $\underline{n}$ = 2408) = 22.91, $\underline{p}$ < .001. In addition, 15 % of the children described themselves as bullies. Again, Mooij reported a higher percentage: 20 % bullies in elementary schools, χ^2 (1, $\underline{n}$ = 2358) = 38.55, $\underline{p}$ < .001. It appears that bullying problems in our sample are less severe than reported by Mooij. There are at least two possible explanations for this phenomenon. First, our sample was regional, whereas Mooij has used a national sample. The severity of bullying may be less extreme in the region of our sample than in other regions of the Netherlands. A second explanation might be the percentage of not responding schools. We had 11 % not responding schools, Mooij had 64 %. It is possible that schools with severe bullying problems were overrepresented in Mooij's sample. Schools with minor bullying problems might have refused to participate in his survey.

Sociometric status: We found 12 % of the children having a popular sociometric status, 15 % had a rejected status, 6 % were neglected, and 4 % were controversial. The remaining 63 % of the children had an average sociometric status. Using a series of Chi-square tests, the distribution of sociometric status groups in our sample was found to differ from other studies (Newcomb & Bukowski, 1983; Cillessen & Ten Brink, 1991; Van Boxtel, 1993). In their meta-analysis of sociometric status research Newcomb, Bukowski, and Pattee (1993) found that "the relative number of children in each group varies from study to study, depending on both modifications to the sociometric criteria and the study sample" (p. 101). For example, gender composition differences between studies might go together with distribution differences: Within our Wave 3 cross-sectional sample there was a difference in sociometric status distribution of boys and girls, χ^2 (4, $\underline{N}$ = 2591) = 78.91, $\underline{p}$ < .001. Girls were more likely to be popular or neglected, whereas boys were more likely to be controversial or rejected. Van Boxtel (1993) also found gender differences, but less clearly as in our sample. Van Boxtel (1993) also discussed other influences, like grade and school type, on the distribution of status groups.

The distribution differences with others samples and studies, on relative numbers of bullies and victims, and of sociometric status groups, indicate that the results of this project should not automatically be generalized to other samples or populations.

WAVE 3 LONGITUDINAL SAMPLE CHARACTERISTICS

The Wave 3 longitudinal sample may be hypothesized to be a special and not an aselect subgroup of the Wave 3 cross-sectional sample. The first reason is obvious: they are all boys. Cillessen (1991) explained that girls were not included in the longi-

tudinal sample at Wave 1 and 2, because "the additional logistics of running play groups with girls surmounted the personnel and financial capacities of the project" (p. 127). Furthermore, respondents were selected at Wave 1 because of their sociometric status. Boys with a rejected or popular sociometric status type were deliberately over-represented in the longitudinal sample at Wave 1. There are no reasons to expect differences with the rest of the cross-sectional sample on age, geographic region, ethnical composition, socio-economic status, school types, or school grades. To investigate what remained in Wave 3 of the special characteristics of the longitudinal sample in Wave 1, we compared the male part of the cross-sectional sample and the longitudinal sample with each other on the distribution of sociometric status groups and on self reported bullying and victimization.

In the Wave 3 longitudinal sample we found 13 % of the boys having a popular sociometric status, 22% had a rejected status, 4 % were neglected, and 6 % were controversial. The remaining 55 % of the children had an average sociometric status. We compared the distribution of sociometric status in the longitudinal sample with the distribution in the other (not longitudinal) male part of the cross-sectional sample and found no differences, χ^2 (4, $\underline{n}$ = 190) = 3.23, .50 < $\underline{p}$ < .70. In the Wave 3 longitudinal sample, 21 % of the boys described themselves as a victim of bullying. This percentage did not differ from the percentage in the other male part of the cross-sectional sample, χ^2 (1, $\underline{n}$ = 179) = 0.04, .80 < $\underline{p}$ < .90. Furthermore, 20 % of the boys described themselves as a bully. This percentage also did not differ from the percentage in the other male part of the cross-sectional sample, χ^2 (1, $\underline{n}$ = 180) = 0.03, .80 < $\underline{p}$ < .90. Taken together, at Wave 3 the longitudinal sample did not differ significantly from the other male part of the cross-sectional sample in terms of sociometric status and bullying involvement.

SELECTIVE ATTRITION

Using a series of Student's $\underline{t}$ tests for independent samples we examined differences between boys in the longitudinal sample that did ($\underline{n}$ = 190) or did not ($\underline{n}$ = 41) participate in Wave 3. No significant differences were found between boys who did or did not participate in Wave 3 on Wave 1 and Wave 2 measures of peer acceptance and peer rejection and five factor model measures of personality. Furthermore, we compared the distribution of Wave 1 and Wave 2 sociometric status positions in groups that did or did not participate in Wave 3. Using two Chi-square tests we found no differences for Wave 1, χ^2 (3, $\underline{N}$ = 231) = 1.08, $\underline{p}$ = .78, and for Wave 2, χ^2 (3, $\underline{N}$ = 231) = 3.64, $\underline{p}$ = .30. We concluded that there was no selective attrition of respondents from the longitudinal sample in Wave 3.

THE BIG FIVE PERSONALITY FACTORS IN Q-SORT DESCRIPTIONS OF CHILDREN AND ADOLESCENTS

L anguage analyses, for example, in English (cf. Norman, 1963; Peabody & Goldberg, 1989) or in Dutch (cf. Brokken, 1978) have enabled taxonomers to reveal in adult self- and peer-ratings five personality factors or dimensions. These Big Five factors have been numbered and labeled as (I) Extraversion (or Power, Surgency), (II) Agreeableness (or Love), (III) Conscientiousness (or Work, Dependability), (IV) Emotional Stability (vs. Neuroticism, or Affect), and (V) Intellect (or Openness, Culture). Studies have been executed in a diversity of languages (cf. Brokken, 1978; John, Goldberg, & Angleitner, 1984), with different sets of person descriptive adjectives, nouns, and verbs (De Raad, 1991), with different types of judges, and with different factor analytic procedures (Goldberg, 1990). In addition, investigators have searched for the Big Five in clinical person descriptions of children and adults (cf. Digman, 1989; Digman & Inouye, 1986; McCrae, Costa & Busch, 1986).

The purpose of this study was to determine the utility of the five-factor personality taxonomy in personality descriptions of children and adolescents. For person descriptions we used a Dutch version of the California Child Q-set (CCQ; J. H. Block & J. Block, 1980). The domain of phenomena covered in the CCQ consists of a large set of statements worded by J. H. Block and J. Block in common language and aimed at the comprehensive description of the wide range of affective, cognitive, and social attributes that manifest themselves in the behavior and personality of children and adolescents between the ages of 3 to 18 years. Two thirds of the statements of the CCQ have been adapted from the adult form of the California Q-set (CAQ, J. Block, 1961/1978). Most of the other items were specifically devised for person descriptions of children and adolescents.

Over the past decades investigators have used the 100 CCQ-items in studies of a great variety of personality characteristics such as ego resiliency and ego control (cf. J. Block, 1971; J. H. Block & J. Block, 1980; Van Lieshout et al., 1986), social competence and social desirability (Waters, Garber, Gornal & Vaughn, 1983), peer competence (Haselager, 1988; Van Lieshout, Van Aken & Van Seyen, 1990), depressive symptoms (J. Block, Gjerde & J. H. Block, 1991; Jansen & Van Aken, 1991), delay of gratification (Bem & Funder, 1978; Mischel & Ebbesen, 1970), as well as in studies of separate behaviors and experiences such as anxiety, stress, depressive feelings,

hypersensitivity, withdrawal, imbalance, cooperation, aggression, disruption, shyness, help seeking, leadership, and intellectual competence (Cillessen, 1991; Van Aken, Van Lieshout, Roosen & Roeffen, 1991; Van IJzendoorn & Cillessen, 1991). The CCQ has also been used in studies of consistency in personality development (Ozer & Gjerde, 1989), and agreement of self-descriptions with descriptions by others (Van Aken & Van Lieshout, 1991; Van Lieshout et al., 1990) as well as in studies of the background of agreement and differences in person descriptions by different judges (Asendorpf & Van Aken, 1991; Funder & Dobroth, 1987). All these studies indicated that the CCQ covers a broad domain of behaviors and person characteristics of children and adolescents.

Characteristics of the Q-sort procedure as well as procedures followed in our study guarantee a broad sampling of children's and adolescents' behavior and personality characteristics. The Q-sort procedure of the CCQ results in an ipsative forced distribution of the items over the nine points of a scale. This scale ranges from extremely uncharacteristic (Category 1) to extremely characteristic (Category 9) for the observed child. It should be noted that extremely uncharacteristic statements are also very salient for the description of a person. A rectangular, forced distribution is used, that is, the same number of items are assigned to each category with the exception of Category 5 where 12 items are placed. This forced distribution leads to comparison of each statement or attribute with other attributes of the child. In contrast to the person-centered ipsative approach, variable-centered rating procedures compare each individual on a statement with a reference group. The Q-sort procedure focuses on a personality description based on within- rather than between-person differences. The ipsative procedure also results in suppression of response tendencies and observer biases (J. Block, 1961/1978). Before using the CCQ, observers must have had the opportunity to observe the child on a day-to-day basis, in a variety of settings, for several months. Also, Q-sort descriptions of judges from different settings are compared in this study, that is, from parents and teachers as well as from self and from peer descriptions of adolescents.

We had good reasons to suspect that our efforts would result in a factor structure of the CCQ descriptions of children and adolescents which was similar to the five-factor model (FFM). Using teachers' behavior ratings of children, Digman (1989; Digman & Inouye, 1986) has shown that the five-factor structure was appropriate for describing children's personality. In addition, McCrae, Costa and Busch (1986) factored self-CAQ-sorts for men and women. The resulting five factors — Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness — closely resembled those found in earlier studies of adjectives and showed convergent and discriminant validity against self-, peer-, and spouse-ratings on other measures of the FFM. McCrae et al. have considered their findings as strong support for the claim of comprehensiveness of the FFM of personality descriptions.

Three sets of research questions were studied. First, how universal is the FFM? Using an existing set of CCQ descriptions in this study, the generality of the FFM has

been tested for adult observer descriptions of children and adolescents ranging in age from 3 to 17 years. If the FFM can be recovered, the generality of the model will be strengthened in several ways. The model will not only be recovered in self- and other-evaluations of adult academics using adjectives, nouns or verbs for personality descriptions, it will also be found in clinical personality assessments of children by lay observers such as teachers and parents. In children and adolescents additional factors may cover behavior patterns and personality characteristics that are less relevant for adults. Therefore, we will also examine the nature of any additional factors beyond the first five.

A second set of research questions concerned the generality of the factors over observers, that is, teachers and parents, over gender of child, and over age of the children. Although the FFM may be recovered in overall analyses of CCQ descriptions by teachers and parents of a large number of children and adolescents, further tests are required to determine whether the five-factor structure will be found in separate sets of CCQ descriptions from teachers and parents of both boys and girls at different age levels. Some factors may be environment-specific, (e.g., Openness and Conscientiousness in school or Emotional Stability at home). Some behaviors may be more specific for boys, (e.g., motor activity), and others for girls, (e.g., verbal skills; cf. Maccoby & Jacklin, 1974), leading to gender-specific factors or facets of factors. In addition, some behaviors may be more relevant for younger children and others for adolescents. Therefore, separate factor analyses of CCQ descriptions from parents and from teachers, for boys and girls, and for children of three age levels were compared with an overall factor analysis.

The third set of research questions concerned a comparison of the factor structure of CCQ descriptions of the same group of early adolescents by four different types of observers: For example, parents, teachers, best friends and self descriptions. In early adolescence children become able to render self and peer descriptions using the CCQ. This comparison might reveal how early adolescents start using the FFM in self and peer descriptions. For this purpose four separate factor analyses of CCQ descriptions from parents, teachers, best friends, and self were compared with an overall analysis.

METHOD

SUBJECTS

In six separate studies (Studies 1 — 6) 937 parents and 899 teachers gave 1836 CCQ descriptions of 720 children and adolescents (462 boys; 258 girls), predominantly attending regular schools. Only one CCQ description from each judge was included in

TABLE 3.1
Number of Subjects, Age, and Type of NCCQ Description, per Study and per Measurement Wave

Study		N^a	Wave	Age^b	NCCQ description^c
			Overall Sample		
1	Siebenheller (1990)	210 (101, 109)	A	11.7 (6.0--16.10)	F/M (315)
2	Van IJzendoorn et al. (1987)	68 (34, 34)	A	5.8 (4.10--6.4)	F/M (133) T (74)
3	Van IJzendoorn et al. (1991)	70 (35, 35)	A	3.6 (3.2--3.11)	F/M (139)
4	Arnhem Study (Van Aken, 1991)	97 (47, 50)	A	7.3 (6.10--7.5)	T (96)
			B	10.2 (9.8--10.8)	F/M (94) T (91)
			C	11.11 (11.5--12.6)	T (80)
5	Nijmegen Study (van Lieshout et al., 1986)	59 (29, 30)	A	12.2 (12.0--12.5)	T (58)
			B	14.0 (13.10--14.3)	F/M (99) T (149)
6	Cillessen (1991)	216 (216, -)	A	6.7 (4.7--9.3)	T (167)
			B	7.7 (5.9--9.10)	T (130)
			C	11.2 (9.5--13.7)	M (157) T (54)
Total		720 (462, 258)			F/M (937) T (899)
			Early Adolescent Sample		
4	Arnhem-Study (van Aken, 1991)	97 (47, 50)	C	11.11 (11.5--12.6)	F/M (87), T (80) P (174), S (87)
5	Nijmegen-Study (van Lieshout et al., 1986)	59 (29, 30)	B	14.0 (13.10--14.3)	F/M (99), T (149) P (68), S (50)
Total		156 (76, 80)			F/M (186), T (229) P (242), S (137)

Note.
[a] Between parentheses number of boys and girls, respectively.
[b] Age in years.months; Between parentheses age range.
[c] NCCQ-description by F = Father; M = Mother; T = Teacher; P = Best Friend; S = Self (Between parentheses number of NCCQ descriptions).

the study. The children were divided into three age groups: one of 636 children (403 boys; 233 girls) between 3.2 and 7.0 years ($\underline{M}$ = 5.8), one of 626 children (430 boys; 196 girls) between 7.1 and 11.6 years ($\underline{M}$ = 9.7), and one of 574 adolescents (316 boys; 258 girls) between 11.7 and 16.10 years ($\underline{M}$ = 13.5). Further details concerning the separate samples are listed in Table 3.1[1].

Analyses concerning the early adolescent sample were based on 794 CCQ descriptions of 156 adolescents (76 boys and 80 girls) from two studies by 186 fathers and mothers, 229 teachers, 242 best friends and 137 adolescents themselves (see lower panel of Table 3.1).

MATERIALS

CCQ descriptions. Subjects provided CCQ descriptions on a Dutch translation (van Lieshout et al., 1986) of the California Child Q-Set (J. H. Block & J. Block, 1980), referred to as the Nijmegen California Child Q-set (NCCQ)[2]. The CCQ consists of 100 statements describing a wide range of behavior and personality characteristics. Each statement is printed on a separate card. The 100 cards were sorted by an observer into nine categories ranging from "least" (Category 1) to "most characteristic" (Category 9). Multiple observers independently described each child with the NCCQ, using a rectangular 9-point forced distribution. Eleven statements were placed in each category except for Category 5, in which 12 statements were placed.

For each subject, one to eight NCCQ descriptions were available. To estimate item reliability in Study 4 for each separate item, a Cronbach's α was obtained over eight NCCQ descriptions. The mean α, averaged over 100 items, was .62 (range .16 to .87).

RESULTS

OVERALL PRINCIPAL COMPONENT ANALYSIS

To determine the number of factors best fitted to the NCCQ descriptions by parents and teachers, several steps were followed. First, a principal component analysis on the 1836 NCCQ descriptions resulted in 19 factors with eigenvalues greater than 1.00. The cumulative percentage of explained variance amounted to 55.9 %.

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[1] Study 6 is extensively described in Chapter 2. Studies 1 to 5 were independent projects, that is, no part of the longitudinal project described in Chapter 2.

[2] Elsewhere, this instrument is als referred to as ""Nijmegen California Kinder-Sorteertechniek" (NCKS).

TABLE 3.2
Nijmegen California Child Q-Set Items
Defining the Seven Factors in the Overall Sample

		1	2	3	4	5	6	7
		Agreeableness	*Conscientiousness*		*Extraversion*		*Dependency*	
			Emotional Stability		*Openness*		*Motor Activity*	
Item Number and Description								
Factor 1: Agreeableness								
2	Is considerate of other children	76^2	-02	03	09	-02	-07	00
6	Is helpful and cooperative	72	03	01	04	07	06	04
3	Is warm and responsive	72	03	-03	18	13	01	03
76	Can be trusted, is dependable	68	05	23	-03	-09	-10	-09
15	Shows concern for moral issues	68	-01	01	-07	09	-06	-09
31	Recognizes feelings of others	64	-01	-02	05	26	-06	-01
11	Attempts to transfer blame to others	-64	06	-18	-14	07	-01	16
32	Tends to give, lend and share	63	04	-16	03	-12	-02	-06
19	Open and straightforward	61	10	05	04	13	00	-09
29	Protective of others	61	07	-09	01	18	05	-05
56	Jealous and envious of others	-60	-06	-05	-12	12	-03	18
4	Gets along well with other children	59	17	-01	39	-03	12	14
20	Tries to take advantage of others	-55	17	-12	-10	-06	01	25
85	Aggressive (physically or verbally)	-54	04	-23	-24	17	21	-15
62	Obedient and compliant	54	-08	18	-10	-34	-21	19
90	Is stubborn	-54	03	-13	-13	10	01	-17
55	Afraid of being deprived	-54	-14	-09	-09	13	-03	23
95	Overreacts to minor frustrations	-52	-21	-21	-14	27	-06	-08
30	Arouses liking in adults	52	08	05	40	-03	00	07
80	Teases other children	-51	16	-23	-02	10	17	-07
25	Uses and responds to reason	50	21	40	00	-16	-10	05
9	Genuine and close relationships	50	11	10	28	04	08	01
93	Behaves in a dominating manner	-47	26	02	-10	30	18	04
13	Generally stretches limits	-47	23	-25	13	16	22	01
10	Transient interpersonal relations	-45	-01	-19	-32	-12	-04	02
61	Tends to be judgmental of others	-42	17	-14	-29	23	11	14
78	Easily offended	-41	-24	-11	-37	15	-03	00
21	Tries to be the center of attention	-41	20	-04	-01	33	18	27
91	Inappropriate in emotive behavior	-38	-21	-18	-34	-22	-06	-07
81	Can admit to own negative feelings	38	33	09	-15	09	-02	-10
57	Tends to exaggerate mishaps	-36	-18	-14	-12	30	-25	10
54	Emotionally labile	-35	-31	-34	-22	10	02	-06
Factor 2: Emotional Stability								
88	Self-reliant, confident	06	64	32	15	11	02	-16
23	Fearful, anxious	-05	-63	-10	-12	-21	-17	00
46	Tends to go to pieces under stress	-04	-61	-18	-18	-07	-10	00
24	Tends to brood and ruminate or worry	13	-59	06	-23	-18	-11	00
60	Anxious in unpredictable situations	06	-58	-13	-08	-19	-13	11
82	Self-assertive	-09	57	05	-14	27	16	-03
64	Calm and relaxed, easy-going	27	53	17	12	-27	-30	-03
77	Appears to feel unworthy	-07	-47	-21	-35	-29	-05	00

(continued)

TABLE 3.2 (continued)

Item Number and Description	1 Agreeableness Emotional Stability	2 Conscientiousness	3 Openness	4	5 Extraversion	6 Motor Activity	7 Dependency
Factor 2: (continued)							
35 Inhibited and constricted	-13	**-47**	-08	-33	**-45**	-11	-05
72 Has a readiness to feel guilty	16	**-46**	00	-22	-15	-01	-01
50 Bodily symptoms from stress	06	**-45**	-04	-11	-02	-09	02
53 Indecisive, vacillating	00	**-42**	-33	-22	**-36**	-14	19
43 Recoups after stressfull experiences	15	**41**	-06	03	-03	03	07
83 Seeks to be independent	-04	**40**	28	-03	-02	09	-27
33 Cries easily	-17	**-40**	-09	09	25	-33	-02
39 Immobilized under stress	-16	**-39**	-20	-31	-26	-13	-05
Factor 3: Conscientiousness							
66 Attentive, able to concentrate	24	16	**70**	11	-09	-10	-05
47 Performance standards for self high	20	-04	**68**	-01	-04	11	-08
67 Planful, thinks ahead	26	18	**65**	06	-16	-19	-17
89 Competent, skillful	16	23	**63**	26	-05	04	-15
68 High intellectual capacity	-04	16	**56**	33	-01	-01	-14
99 Is reflective	31	09	**51**	-02	-36	-30	-07
40 Is curious and exploring	08	20	**45**	29	24	14	-19
Factor 4: Openness							
92 Physically attractive, good-looking	12	08	08	**53**	-04	06	11
97 Active fantasy life	-02	04	-03	**52**	17	07	-35
42 Interesting and arresting child	18	14	13	**52**	15	15	-19
96 Creative	11	12	16	**48**	10	03	**-37**
79 Suspicious of others	**-47**	-07	-07	**-47**	-14	-04	07
73 Responds to humor	22	28	-13	**43**	04	14	-12
36 Resourceful in initiating activities	08	21	19	**43**	19	21	-33
5 Admired and sougt by other children	25	21	07	**41**	05	26	04
75 Cheerful	**35**	31	-12	**37**	13	20	13
Factor 5: Extraversion							
8 Keeps thougts and feelings to self	00	-06	00	-17	**-65**	-06	-07
98 Shy and reserved	03	-29	03	-20	**-59**	-25	-04
58 Emotionally expressive	06	18	-14	07	**55**	-06	02
18 Expresses negative feelings openly	-11	**41**	-17	-11	**43**	07	-09
86 Likes to be by him/herself	-03	03	12	-03	**-43**	**-35**	-31
44 Tends to yield and give in	27	-26	-05	-04	**-43**	-14	18
69 Verbally fluent	06	34	27	25	**38**	-05	-12
45 Withdraws under stress	-02	-28	-21	-10	**-37**	-20	12
84 Is a talkative child	-20	14	-27	05	**37**	20	09
Factor 6: Motor Activity							
26 Physically active	-04	15	-09	27	08	**67**	02

TABLE 3.2 (continued)

Item Number and Description	1 Agreeableness Emotional Stability	2 Conscientiousness	3	4 Openness	5 Extraversion	6 Motor Activity	7 Dependency
Factor 6: (continued)							
28 Vital, energetic, lively	04	21	-07	**37**	26	**61**	-01
52 Physically cautious	15	-10	10	-09	-18	**-59**	02
51 Agile and well coordinated	06	21	05	29	-04	**53**	03
63 Rapid personal tempo	-07	15	31	-03	07	**49**	-04
37 Competitive	-24	16	34	-11	11	**42**	22
34 Is restless and fidgety	-28	-35	-29	-27	09	**38**	-02
70 Daydreams, gets lost in reverie	00	-12	**-36**	-09	-29	**-37**	-08
Factor 7: Dependency							
14 Eager to please	-14	02	-08	-06	05	05	**55**
48 Others sought to affirm self worth	-11	-12	-02	-17	08	04	**41**
22 Manipulates others by ingratiation	**-37**	11	-25	05	08	-07	**40**
38 Unusual thought processes	-24	-07	-21	-15	-17	-13	**-37**
87 Tends to imitate those admired	-17	-04	-13	12	-02	07	**36**
Items not in solution[a]							
7 Seeks physical contact with others	06	-01	-23	34	25	-10	06
65 Unable to delay gratification	-34	04	-28	08	19	02	04
1 Prefers non-verbal communication	01	-04	-27	-03	-34	03	-13
94 Tends to be sulky or whiny	-33	-33	-13	01	17	-32	-02
41 Persistent, does not give up	00	26	33	-11	-04	12	-18
71 Looks to adults for help	11	-13	-13	-04	-01	-23	33
74 Becomes involved in what (s)he does	23	-06	33	08	17	05	-16
100 Easily victimized by other children	-28	-24	-21	-32	-03	-14	-10
12 Immature behavior under stress	-25	-29	-21	04	14	-22	-03
49 Shows specific mannerisms	-12	-22	-28	-02	-11	-08	-12
59 Neat and orderly in dress	25	10	26	-16	-18	-24	20
16 Proud of own accomplishments	-01	24	23	01	08	03	16
17 Behaves in a sex-typed manner	-01	18	-04	01	-07	23	22
27 Visibly deviant from peers	-04	-01	-10	-23	-12	-08	-16

Note.

Factors are reported in the order of the factor extraction in the overall sample.

Within factors, items are sorted according to descending absolute factor loadings.

Loadings $\geq$ 0.35 are printed in bold face. Decimal points are omitted.

[a] Loadings < 0.35 on all seven factors.

Next, a scree plot indicated that at least four components might be extracted. The ipsative character of Q-sort data, however, lowers the average intercorrelations among Q-sort items. As a consequence, components typically will have comparatively low eigenvalues. One must choose between leaving much variance unexplained or retaining many components that may be quite unstable, unless sample size is very large (cf. Ozer, 1993). Because our sample was very large, we considered the four-component solution as the minimum number of factors and we subsequently explored a five-, six-, seven-, eight-, and nine-factor solution. Two quantitative indicators were used to evaluate the similarity between the factors derived in subsequent solutions, that is, the number of common high loading (equal or higher than $|.35|$) items on factors in subsequent solutions, and Tucker's ϕ (cf. Harman, 1967) as a coefficient of factor congruence.

The seven-factor solution fit our data best for a number of reasons. Eight- and nine- factor solutions did not have more than one item on the last factor with a unique factor loading higher than .35. In the four-, five-, six-, and seven-factor solutions, in subsequent solutions subgroups of items were regrouped under different components. In the eight- and nine-factor solutions no further regrouping occurred. On the contrary, subgroups of items split from earlier components. The mean Tucker's ϕ among corresponding factors in subsequent solutions increased from .78 to .94 between the four- and five-factor solution and between the seven- and eight-factor solutions, and subsequently decreased to .92 between the eight- and nine-factor solutions. The cumulative percentage of explained variance of the seven-factor solution was 40.5 %. The varimax-rotated seven-factor solution is presented in Table 3.2. Item loadings higher than .35 on each factor are printed boldface. Fourteen items did not reach the .35 criterion. These 14 items were a heterogeneous subset of items. The factors are reported in the order of factor extraction in the overall sample and are numbered with Arabic numbers to distinguish the factors of this study from the FFM. The latter are numbered with Roman numbers according to convention in FFM studies.

Factor 1 (32 items), contained by far the largest number of items and closely resembled Love or Agreeableness (Factor II). This bipolar factor covered the broad area of prosocial versus antisocial relationships, especially peer relationships. The factor contrasted a warm, empathic consideration of other people's needs, emotions and interests and open, trustful interpersonal orientations with aggressive, irritated and antisocial exploitations of others. The large number of items loading on this factor reflects the number of items related to agreeable behavior on the CCQ but also reflects the large number of person descriptors referring to agreeableness in the common language (cf. Goldberg, 1990; Hofstee & de Raad, 1991).

Factor 2 (16 items) contained items that predominantly referred to Affect or Emotional Stability (Factor IV). Self-reliance, assertiveness, being easy-going, independent, and resourceful were opposed to being fearful, anxious, emotionally disorganized under stress, and having low self-esteem.

Factor 3 (7 items) was called Conscientiousness. Highest loading items concerned conscientiousness in work situations. This factor combined a concentrated, planful, reliable, and competent high achievement orientation with high intellectual capacity, reflection and curiosity. This factor consisted of only items with positive loadings. Typical negative items concerning disorganization, negligence, carelessness, impracticality, irresponsibility, laziness or extravagancy (cf. Goldberg, 1992) were not represented. Two items with their highest loading on this factor — *High intellectual capacity*, and *Is curious and exploring*, according to their content might better fit in the Openness factor in the FFM.

Factor 4 (9 items) combined openness to new ideas and experiences with physical attractiveness. The predominantly positive loading items emphasized nonscholastic openness in terms of fantasy, imagination, creativity, humor, and resourcefulness, along with attractiveness and good humor. The only negative loading item, *Suspicious of others,* had a similar negative loading on the first factor Agreeableness. The social items (e.g., items 92, 79, 5 and 75) are usually not considered markers of Openness (cf. Goldberg, 1992). The absence of negative loading items on Openness is in agreement with the low number of negative openness descriptors in common language (cf. Goldberg, 1990; Hofstee & De Raad, 1991).

Factor 5 (9 items) concerned Extraversion versus Introversion. Emotional and verbal expressiveness were contrasted with shyness, inhibition, self-isolation, withdrawal and nonassertiveness. Some aspects of Extraversion such as sociability, energy and motor (in)activity did not load on the factor, being instead part of a separate factor (Factor 6).

Factor 6 (8 items) specifically referred to Motor Activity. This factor contrasted a high level of agility, physical activity, motor coordination, restlessness and rapid personal tempo with physical cautiousness and daydreaming.

Factor 7 (5 items) was called Dependency. Most items were specifically oriented towards dependency on others and a strong tendency to seek support and affirmation from others.

GENERALITY OF FACTORS OVER OBSERVERS, GENDER OF CHILD, AND AGE LEVEL.

Several steps were followed to determine the similarity of the varimax-rotated factor solutions within the overall sample with varimax-rotated factor solutions of NCCQ descriptions within seven subsamples, for example, NCCQ descriptions from parents and from teachers, for boys and for girls, and for three separate age groups. First, seven separate forced seven-factor principal component analyses were computed for each specific subsample. Subsequently, Tucker's φ matrices were computed between the seven factors within the overall sample and the seven factors within each specific factor solution. Next, the factor of a specific subsample with the highest Tucker's φ congruence coefficient was similarly labeled as the corresponding factor in the overall

sample. When all φ coefficients of a factor within the subsample remained below .60, such a factor was not labeled with one of the seven factor labels of the overall sample. In those instances a factor was labeled according to its item content (e.g., Irritability) or received a number code according to the factor number in the factor solution of the specific subsample. The findings of the factor comparisons are reported in Table 3.3.

The factor and item orders are the same as in Table 3.2. The seven-factor solution within the overall sample is reported in the most left Column 1, using a letter code for each factor with a plus or minus sign for a negative or positive loading of an item on a factor. A high loading (equal or higher than .35) on the second highest loading factor is also reported using a letter and plus —minus code. High loadings on a third or a fourth factor were rare and are not reported. In all seven comparisons of the overall sample with the seven specific subsamples (see Table 3.3, Columns 2 —8) Agreeableness had the highest average congruence (.99), followed by Emotional Stability (.97), Conscientiousness (.94), and Extraversion (.90). Of the FFM factors, Openness had the lowest average congruence (.85), lower than Motor Activity (.88). Dependency was the least stable factor of all seven (.83).

PARENTS' AND TEACHERS' NCCQ DESCRIPTIONS
(COLUMNS 7 AND 8)

Within the teachers' subsample the seven-factor solution of the overall sample emerged quite clearly. The percentage of explained variance of the seven-factor solution for teachers (47.6 %) was considerably higher than for parents (32.9 %; see bottom line of Table 3.3). The Tucker's φ congruence coefficients across the seven corresponding factors ranged for teachers from .91 (for Openness) to .99 (for Agreeableness) and averaged .96, indicating high congruence of the factor solution of the teachers' subsample with the overall sample. A somewhat lower congruence with factors within the overall sample was found for six out of seven factors within the parental subsample. For these six factors φ coefficients ranged from .79 (for Openness) to .98 (for Emotional Stability) and averaged .90. The seventh factor in the parental sample was related to Dependency (Tucker's φ = -.69) as well as to Openness (Tucker's φ = .68) in the overall sample. Therefore, a second factor in the parental solution in Table 3.3 (Column 7) was related to Openness and was indicated as O$_2$. Summarizing, teachers seem to be more proficient in describing children's personality than parents. As professionals, teachers more often than parents, provide behavior and personality descriptions of children. In general, they are better trained than parents, having more experience in describing children's behavior and personality and they have had exposure to many more children and to a greater diversity of children than parents. Parents have a broader view on Openness. Included in this parental factor are a number of items referring to social and relational skills of children: For example, *Gets along well with other children*, *Arouses liking in adults*, *Genuine and close relationships*, *Transient interpersonal relations* (reversed); and *Easily offended* (reversed).

TABLE 3.3
Forced Seven Factor Solutions in Several Samples

Item Number and Description[a]	Over All Sample	Subsamples from Overall Sample							Early-Adolescent Sample			
		Gender		Age Group[b]			Rater		Rater			
		Boys	Girls	<7.0	7.0-11.5	11.5<	Parent	Teacher	Parent	Teacher	Peer	Self
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Factor 1 Agreeableness												
2 Is considerate of other children	A+c	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A1+A2+
6 Is helpful and cooperative	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A2+
3 Is warm and responsive	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A1+
76 Can be trusted, is dependable	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A2+A1+
15 Shows concern for moral issues	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	5-
31 Recognizes feelings of others	A-	A+	A+	A-	A-	A-	A-	A-	A-5-	A-	A-	A1-A2-
11 Attempts to transfer blame to others	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	
32 Tends to give, lend and share	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A1+
19 Open and straightforward	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	E+
29 Protective of others	A+	A+	A+	A-	A+	A+	A-	A-	A-	A-	A-	
56 Jealous and envious of others	A-	A-	A-	A-	A-	A-	O1+	A+	5+	A+	A-	
4 Gets along well with other children	A+O+	A+	A+O+	A+O+	A+	A+M+	A-	A-	A-	A-	O+*A+	A2+E+
20 Tries to take advantage of others	A-	A-	A-	A-	A-	A-	A-	A-	A-	A-	A-	A1-
85 Aggressive (physically or verbally)	A-	A-	A-	A-M+*	A-*	A-	A-	A-	7+A+	A+E-	A+	A1-
62 Obedient and compliant	A+	A+	A+E-	A+M-*	A+	A+	A+	A+E-	A-	A+E-	A-	A1-
90 Is stubborn	A-	A-	A-	A-	A-	A-	A-	A-	A-	A-	A-	A1-
55 Afraid of being deprived	A-	A-	A-	I+A-	A-	A-	A-	A-	5-	A-E+	A-	A1-
95 Overreacts to minor frustrations	A-	A-	A-	A-	A-	A-	A-	A-	C+	A-E+	A-	
30 Arouses liking in adults	A+O+	A+	A+	O+A+	A+	A+	O1+	A+	A+5+	A+	E+	E+
80 Teases other children	A-	A-	A-	A-	A-	A-		A-	A-	A-	A-	A1-
25 Uses and responds to reason	A+C+	A+	A+C+	A+I-	A+	A+C+	C+A+	A+	A+5+	A+	A+O+*	A1+
9 Genuine and close relationships	A+	A+	A+	O+A+	A+	A+	O1+	A-E+	A-	A+	A+O+*	A2+E+
93 Behaves in a dominating manner	A-	A-	A-E+	A-S+	A-	A-		A-		A-	A-	A1-
13 Generally stretches limits	A-	A-	A-	A-	A-	A-	A-	A-		A-	A-	A1-
10 Transient interpersonal relations	A-	A-	A-	O-	A-	A-	O1-	A-	A-	A-	A-	A2-E-
61 Tends to be judgmental of others	A-	A-	A-E+	O A-	A-	A-S		A-E+	O-	A-E+	S+	A2-E-
78 Easily offended	A-O-	A-	A-	D+A-	A-	A-S	O1-	A-		A-D+	A-	A2-
21 Tries to be the center of attention	A-	A-	E+A-	O-	A-	A-		A-E+	A-	A-D-	2-	
91 Inappropriate in emotive behavior	A-	A-	A-	S+	S+	A+	E-	A-	E-	A-		5-
81 Can admit to own negative feelings	A+	A+	A+	1+	A-	A-		A+	A+	A+D-	A-	A2-
57 Tends to exaggerate mishaps	A-	A-	1+		A-	A-		A-		A-E+	A-	
54 Emotionally labile	A-	A-	A-		A-	A-		A-S-		A-C-		A2-

TABLE 3.3 (continued)

Columns span: *Subsamples from Overall Sample* covers Gender, Age Group, and Rater (Parent/Teacher). *Early-Adolescent Sample[e]* covers Parent and Rater (Teacher/Peer/Self).

Item Number and Description[a]	Over All Sample	Gender		Age Group[b]			Rater		Early-Adolescent Parent	Rater		
	Sample	Boys	Girls	<70	70-115	115<	Parent	Teacher	Parent	Teacher	Peer	Self
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Factor 2 Emotional Stability												
88 Self-reliant, confident	S+	S+	S+	S+	S+	S+C+	S+	S+	S+C+	S+	S+	S+
23 Fearful, anxious	S-	S-	S-	S-	S-	S-	S-	S-E-	S-	O-E-	S-	S-M-
46 Tends to go to pieces under stress	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-
24 Tends to brood, ruminate or worry	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-
60 Anxious in unpredictable situations	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-O-	S-	S-
82 Self-assertive	S+	S+	E+S+	S+	S+	S+E+	S+	S+E+	7-S+	E+S+	S+	S+
64 Calm and relaxed, easy-going	S+	S+	S+	M-*	S+	S+	S+	S+	S-	S+A+	A+	S+
77 Appears to feel unworthy	S-	S-	S-	S-O-	S-	S-	S-O1-	S-	S-	O-S-		S-
35 Inhibited and constricted	S-E-	S-	E-S-	S-O-	E-S-	E-S-	S-E-	E-S	E-	E-O-	6-	S-
72 Has a readiness to feel guilty	S-	S-	S-	S-	S-	S-	S-	S-	E-	S-	S-	S-
50 Bodily symptoms from stress	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-	S-
53 Indecisive, vacillating	S-E-	S-	C-S	S-C-	C-E-	E-C-	S-	S-C-	E-7+	O-S-	.	C-*
43 Recoups after stressfull experiences	S+	S+	S+	S+	S+	S+		S+		S+	S+	
83 Seeks to be independent	S+	S+		S+	S+	S+	S+	S+	C+	S+	6-	C+*
33 Cries easily	S+	S+	1+	1+	S-	S-		S-	S-	S-	S-	A2-
39 Immobilized under stress	S-	S-	S-	S-O-	S-	S-	s-	s-	s-	E-		
Factor 3 Conscientiousness												
66 Attentive, able to concentrate	C+	C+	C+	C+M-*	C+	C+	C+	C+A+	C+	C+A+	C+A+	C+*
47 Performance standards for self high	C+	C+	C+	C+	C+	C+	C+	C+	C+	C+A+	C+*	C+*
67 Planful, thinks ahead	C+	C+	C+	M*C+	C+	C+	C+	C+	C+	C+A+	A+	C+*
89 Competent, skillful	C+	C+	C+	C+	C+	C+	C+	C+	C+	C+O+		
68 High intellectual capacity	C+	C+O+	C+	M-*	C+	C+	C+	C+O+	C+S+	O+		C+*S+
99 Is reflective	C+E+	C+M-	E-C+	M-*	C+A+	C+	C+	E-C+	C+E-	E-A+	6-	C+*
40 Is curious and exploring	C+	C+O+	C+	C+S+	O+C+	C+O+*	C+	C+O+	C+E+	O+C+	A+	
Factor 4 Openness												
92 Physically attractive, good-looking	O+	O+	O+	O+	O+	O+*	O2+	O+	7+S+	O+	O+*	E+
97 Active fantasy life	O+	O+	D-	.	O+	O+*	O2+	O+	O+	O+	2+	
42 Interesting and arresting child	O+	O+	O+	O+	O+	O+*	O2+	O+	S+O+	O+	2+	
96 Creative	O+D+	O+	D-	C+	O+	A-	O2+	O+	O+	O+	2+	A2+
79 Suspicious of others	O-A-	A-O-	A-O-	A-O-	A-	A-	O1-	A-O-	A-	A-	A-	5+

(continued)

TABLE 3.3 (continued)

Item Number and Description[a]	Over All Sample (1)	Boys (2)	Girls (3)	<7 0 (4)	7 0-11.5 (5)	11.5< (6)	Parent (7)	Teacher (8)	Parent (9)	Teacher (10)	Peer (11)	Self (12)
		Gender		Age Group[b]			Rater			Rater		
		Subsamples from Overall Sample							Early-Adolescent Sample[e]			
Factor 4: (continued)												
73 Responds to humor	O+	O+		O+	O+	O+*		O+	S+	O+A+	2+	.
36 Resourceful in initiating activities	O+	O+	D-	C+O+	O+	O+*	O2+	O+	O+E+	O+	2+	M+
5 Admired and sought by other children	O+	O+	O+	O+	A+	M+	O1+	O+	5+	A+	O+*	E+
75 Cheerful	O+A+	A+S+	O+	O+	A+	A+	O1+	A+	.	A+S+	.	A2+
Factor 5: Extraversion												
8 Keeps thoughts and feelings to self	E-	E-	E-	S-M-*	E-	E-	E-	E-	E-	E-	.	E-
98 Shy and reserved	E-	E-S-	E-	M+*O+	E-	E-	E-	E-	E-	E-M-*	O-*	M-E-
58 Emotionally expressive	E+	E+	E+	S+	E+S+	E+	E+	E+	A+	E+	.	5-
18 Expresses negative feelings openly	E+S+	S+E+	E+	D-M-*	E-M-	E+	S+	E+	E+	E-M-*	.	5-
86 Likes to be by him/herself	E-M-	M-E-	E-	S-	E-A+	M-		E-	E-	E-A+	.	E-
44 Tends to yield and give in	E-	E-	E-	C+S+	E+	E+	s-	E-	.	E+O+	O+*	E+
69 Verbally fluent	E+	O+S+	S+E+	S-	E+	E+	E+	O+	E+	E-M-*	O-*	E-
45 Withdraws under stress	E-		E-	M+*	E-	E-		E-	E-	E+A-	A-	A1-
84 Is a talkative child	E+	.	E+	M+*	E+	.	.	E+	E+	E+A-	A-	A1-
Factor 6: Motor Activity												
26 Physically active	M+	M+	M+	M+*	M+	M+	M+O1+	M+	5+	M+*	2+	M+
28 Vital, energetic, lively	M+O+	M+	O+E+	M+*O+	M+	M+O+*	M+O1+	M+	E+5+	M+*E+	2+	M+
52 Physically cautious	M-	M-	O-E-	M-*	M-	M-	M-	M-	E-	M-*	.	.
51 Agile and well coordinated	M+	M+	O+	1-O+	M+	M+	M+O1+	M+	5+	M+*	2+	M+
63 Rapid personal tempo	M+	M+C+	1-		C+M+	M+	M+	C+M+		C+	C+	.
37 Competitive	M+	C+	s-	D+	C+M+	M+	M+	C+M+	s-	C+	7-	A1-
34 Is restless and fidgety	M+	M+	.	M+*	A-M+	S-	C-	M+S-	.	M+*A-	.	C-*
70 Daydreams, gets lost in reverie	M-C-	C-M-	C-	.	C-	M-C-	M-	C-	E-	C-	C-	.
Factor 7: Dependency												
14 Eager to please	D+	D+	D+	D+	D+	D+	O2-	D+	.	D+	7-	.
48 Others sought to affirm self worth	D+	D+	D+	D+	D+	D+		D+	.	D+	7-	.
22 Manipulates others by ingratiation	D+A-	D+	A-D+	C-	D+	.	.	D+A-	C-	D+A-	2-	.
38 Unusual thought processes	D-	.	D-	D-	A-	.	.	.	E-	A-S-	A-	.
87 Tends to imitate those admired	D+	D+	.	.	D+	.	.	D+	.	D+	.	.

TABLE 3.3 (continued)

Items not in Overall Sample Factor Solution[d]

Item Number and Description[a]	Over All Sample	Subsamples from Overall Sample							Early-Adolescent Sample[e]			
		Gender		Age Group[b]			Rater			Rater		
		Boys	Girls	<7.0	7.0-11.5	11.5<	Parent	Teacher	Parent	Teacher	Peer	Self
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
7 Seeks physical contact with others	.	.	I+	.	.	.	.	.	.	E+	.	.
65 Unable to delay gratification	.	.	.	I+	E-	A-	A-	A-	A-	A-	A-	A1-
1 Prefers non-verbal communication	.	.	.	.	.	.	A-	.	.	C-	S-	.
94 Tends to be sulky or whiny	.	.	I+A-	I+	S-	S-	E-	S-	S-	S-A-	.	.
41 Persistent, does not give up	.	.	D+	C-	C+	C+	.	C+	7-	C+	.	.
71 Looks to adults for help	.	.	.	C+	D+	D+	.	.	7+	D+	.	.
74 Becomes involved in what (s)he does	.	.	.	O-	.	.	.	C+	.	A+C+	.	.
100 Easily victimized by other children	.	A-	O-	C+	A-	.	O1-	A-	5-	A-	.	A2-
12 Immature behavior under stress	.	.	.	I+	S-	M-	.	S-	C-	S-	.	.
49 Shows specific mannerisms	.	.	.	.	.	.	.	C-	.	.	S-2-	.
59 Neat and orderly in dress	.	.	.	M+	.	.	C+	.	.	A+M-*	C-	A1+
16 Proud of own accomplishments	.	.	.	.	.	.	.	.	.	.	.	.
17 Behaves in a sex-typed manner	.	M+	D+	.	.	.	.	.	.	S+	A+	5+
27 Visibly deviant from peers	.	.	O-	.	.	.	.	.	.	.	.	.
Number of Q-descriptions	1836	1149	687	636	626	574	937	899	186	134	242	137
% of Variance Explained by Solution	40.5	41.4	39.7	41.0	43.0	39.7	32.9	47.6	35.9	56.9	31.6	29.3

- The rank-number of the factor of the concerning solution is assigned when no relation was found with any factor within the overall sample.
- Codes printed in bold face correspond with the same factor within the overall sample.* Meaning of other codes:
  + Denotes a positive factor loading,
  - denotes a negative loading.
  * Afterwards inverted sign of code (Tucker's φ with corresponding factor in overall sample was negative).
- d Loadings < |0.35| on all seven factors in overall sample.
- e Total number of Q-descriptions in early-adolescent sample: 794.

Note.

a Factors are reported in the order of the factor extraction in the overall sample. Within factors, items are sorted according to descending absolute factor loadings.

b Age in years.

c Factor codes (letter codes) are assigned according to the factor solution in the overall sample:
- Meaning of letters: A, A1, A2: Agreeableness; S: Emotional Stability; C: Conscientiousness; O, O1: Openness; O2: Openness & Dependency; E: Extraversion; M: Motor Activity; D: Dependency; I: Irritability and Immaturity.
- Codes are printed for items with loadings ≥ |0.35|. Maximally two highest loading factors are coded on an item. Dots denote loadings < |0.35| on all seven factors.
- Letter codes are assigned to factors with a congruence (Tucker's φ) > |0.60| with one or more factors in the overall solution.
- In self-descriptions letter codes are assigned to factors with highest congruence with factor within overall sample.

GENDER OF CHILD
(COLUMNS 2 AND 3)

The seven-factors solution within the subsample of boys was most similar to the overall seven-factors solution. For boys, the Tucker's ϕ coefficients across the seven corresponding factors ranged from .93 (for Dependency) to .99 (for Agreeableness), and averaged .97. For girls, the Motor Activity factor was not differentiated from Openness. In addition, some Openness items for girls intersected with negative Dependency. For girls, the six factors corresponding with factors within the overall sample reached ϕ coefficients ranging from .82 (for Openness) to .99 (for Agreeableness), and averaged .93. The higher average congruence for boys may result from the much larger number of NCCQ descriptions of boys in the overall sample. In Study 6 only boys were involved. Also, the content of some factors was fairly different for boys and girls. The most striking difference was the absence of a Motor Activity factor in girls. Openness also had a different content. Four out of eight Motor Activity items within the overall sample loaded in the factor solution for girls on Openness (i.e., *Physically active*; *Vital, energetic*; *lively*; *Physically cautious* (reversed); and *Agile and well coordinated*). In contrast, some other items did not load on Openness, (i.e., *Active fantasy life*; *Creative*; and *Resourceful in initiating activities*). These latter items were negatively related to Dependency.

Thus, in boys items with high loadings on Openness emphasized high intellectual skills, verbal fluency, creativity, and fantasy as well as social attractiveness. In girls Openness items referred to a broader content, that is, motor activity and motor coordination, social cognitive and social relational capacities and skills, as well as social and physical attractiveness. Imagination, fantasy, and resourcefulness was the opposite of Dependency in girls, that is, a tendency to seek support and affirmation from others. In addition, the girl seventh factor referred to irritability and immature behavior (cf. Robins, John & Caspi, 1994) with high loading items as *Tends to exaggerate mishaps*; *Cries easily*; *Rapid personal tempo* (reversed); *Seeks physical contact with others*; and *Tends to be sulky or whiny*.

AGE DIFFERENCES
(COLUMNS 4, 5, AND 6)

The overall sample was divided into three age groups — kindergarten age from 3.0 to 7.0 years of age, middle childhood from 7.1 to 11.6 years, and adolescence from 11.7 to 17.0 years. For the youngest age group (see Column 4), the average congruence with the overall sample was the lowest (.82) and ranged from .66 (for Extraversion) to .89 (for Agreeableness). In this age group the largest number of items (24 items) had a high loading (equal or higher than .35) on a second factor. Many items had ambiguous or undifferentiated meanings in terms of the overall seven factors. Furthermore, the Extraversion factor was not clearly differentiated from the Emotional Stability factor. The following six out of nine items of the Extraversion factor in the overall sample had

a high loading on Emotional Stability in this young age group: *Shy and reserved* (reversed); *Emotionally expressive*; *Expresses negative feelings openly*; *Tends to yield and give in* (reversed); *Verbally fluent*, and *Withdraws under stress* (reversed). At this age, the Motor Activity factor had a diverse content. There were a few specific motor activity items: *Physically active*; *Vital; energetic; lively*; *Physically cautious* (reversed); and *Is restless and fidgety*; The factor also contained items related with (low) Conscientiousness: *Attentive; able to concentrate* (reversed); *Planful; thinks ahead* (reversed); and *Is reflective* (reversed); as well as items concerning low impulse control: *Aggressive*; *Obedient and compliant*, (reversed); *Calm and relaxed; easy-going* (reversed); *Shy and reserved* (reversed); *Likes to be by him / herself* (reversed); and *Is a talkative child*. Finally, a sixth factor, unrelated to any of the overall seven factors, was obtained and concerned irritability and immaturity (cf. Robins et al., 1994).

The middle childhood subsample (see Column 5) was most congruent with the overall sample. The ϕ coefficients with the corresponding factors within the overall sample ranged from .81 (for Openness) to .99 (for Agreeableness), and averaged .93. On the Openness factor the more social items were no longer high loaders (equal or higher than .35): items such as *Physically attractive*; *good-looking*; *Suspicious of others* (reversed); *Admired, sought out by other children*; and *Cheerful*; while the item *Is curious and exploring* was added to this factor. Thus, the item content of the Openness factor at this age was more in agreement with the content of the adult Openness factor (cf. Goldberg, 1992).

In adolescence (see Column 6) the factor structure was somewhat less congruent with the overall sample than in middle childhood. The ϕ coefficients ranged from .73 (for Openness) to .99 (for Agreeableness), and averaged .90. As in middle childhood the content of the Openness items was more in agreement with the content of the adult Openness factor.

DIFFERENT OBSERVERS IN EARLY ADOLESCENCE
(COLUMNS 9-12)

To determine the factor structure of NCCQ descriptions within each subsample of parents, teachers, best friends, as well as self descriptions, forced seven-factor varimax-rotated principal component solutions were compared to the seven-factor solution for the overall sample. The factor analysis of teacher's NCCQ descriptions explained the highest percentage of variance (56.9 %) and those for best friends and for self the lowest percentages (31.6 and 29.3 %, respectively; see bottom line Table 3.3).

Within the parental NCCQ descriptions, five factors revealed substantial congruence across six factors within the overall sample. They were Agreeableness (ϕ = .93), Conscientiousness (ϕ= .92), Emotional Stability (ϕ = .89), Extraversion (ϕs with Extraversion and Motor Activity in the overall sample were .80 and .67, respectively), and Openness (ϕ = .62). In addition to the majority of the Extraversion items, as shown in Column 9, items of Factor 5 loaded high on Extraversion, (e.g., the motor

activity items *Vital, energetic*; *lively*; *Physically cautious*; and *Daydreams, gets lost in reverie* (reversed); but also *Admired and sought by other children*; and *Easily victimized by other children* (reversed); but also *Admired and sought by other children*; and *Easily victimized by other children* (reversed). For parents, motor activity and sociability were also highly related to Extraversion.

For the subsample of teacher NCCQ descriptions of early adolescents two forced varimax-rotated seven-factor principal component analyses were computed. The first analysis was based on 229 separate NCCQ descriptions, that is, 80 NCCQ descriptions of 80 12-year-olds in Study 4 and 149 NCCQ descriptions of 54 14-year-olds in Study 5. This seven-factor solution explained 51.7 % of the variance, but the factors Extraversion, Conscientiousness, Openness, and Motor Activity were not well differentiated. The reason for the low differentiation among factors may be that in high school the three NCCQ descriptions were done by teachers each of whom taught a different subject matter, each for only a few hours per week. Therefore, they might not be acquainted well enough with the adolescent to give differentiated descriptions. In contrast, the 12-year-olds were all in elementary school and each had one or two teachers who knew them well.

The second forced seven-factor principal component analysis was computed on 134 NCCQ descriptions. For 80 children in the sixth elementary school grade the NCCQ description was given by their teacher. For the 54 14-year-old children, mean scores per item were computed per subject over two or three teachers. These mean scores were used in the factor analysis. This second factor analysis is reported in Table 3.3, Column 10. This solution explained 56.9 % of the variance. The coefficients of congruence of the seven factors with the corresponding factors within the overall sample ranged from .77 (for Openness) to .98 (for Agreeableness), and averaged .86. In this sample many items had high loadings on more than one factor. Most items, however, had their highest loading on the same factor as in the overall sample. Deviant items often had their highest loading on a factor that was more in agreement with the content of the factor that was typical for adults: For example, *Self-assertive* and *Inhibited and constricted* (reversed) on Extraversion; *High intellectual capacity* and *Is curious and exploring* on Openness; and *Suspicious of others* (reversed), *Admired and sought by other children* and *Cheerful* on Agreeableness. In teachers' views, early adolescents' Openness concerned high intellectual capacities, curiosity, fantasy, creativity, imagination, resourcefulness, and verbal fluency, and, negatively, some aspects of Neuroticism, (e.g., anxiety, low self-esteem, and indecisiveness). In addition to the Big Five factors, teachers also distinguished Motor Activity and Dependency in early adolescents. Motor Activity is mainly restricted to physical activity, motor coordination and, negatively, to aspects of Introversion such as shyness, self isolation, and withdrawal.

In NCCQ descriptions by best friends, four factors had a substantial congruence with factors in the overall sample. They were Agreeableness (ϕ = .93), Emotional Stability (ϕ = .85), Conscientiousness (ϕ = .68) and Openness (ϕ = -.63). Extraversion

was missing in best friends' person descriptions. In addition, a factor (coded as Factor 2, Column 11) had its highest congruence (ϕ =.59) with Motor Activity, but also with Openness (ϕ = .57). This factor combined items related to Motor Activity with Openness. Apparently, best friends do not differentiate between Motor Activity and Openness. A sixth and seventh factor each had only three high loading items.

Factor analysis of the adolescents' NCCQ self-descriptions explained the lowest percentage of variance — 29.3 %. ϕ coefficients were also low but the factors were meaningfully related to the factors within the overall sample. Three factors had a substantial congruence with factors in the overall sample. They were Agreeableness (In Table 3.3 coded as A_1, ϕ = .74), Emotional Stability (ϕ = .75), and Conscientiousness (ϕ = .71). An additional factor (coded as A_2) also had a high congruence score with Agreeableness (ϕ = .58) and contrasted genuine and dependable relationships versus victimization by other children and irritability and immaturity. Another factor (coded as E) had the highest ϕ (.47) with Extraversion in the overall sample and contrasted sociability, social and physical attractiveness, and verbal fluency versus social withdrawal. Of the two residual factors one (Column 12, Factor 7) was related to Motor Activity (ϕ = .51), while the other had no congruence relation with factors within the overall sample.

To summarize, in comparison to the other specific factor solutions, factors in self descriptions have lower coefficients of congruence with factors within the overall sample. Nevertheless, the item content of five out of seven factors could be related to four of the five Big Five factors: Agreeableness, Emotional Stability, Conscientiousness, and Extraversion. None of the factors was clearly related to Openness. An additional factor was related to Motor Activity.

DISCUSSION

The first five principal components in factor analyses of NCCQ descriptions by teachers and parents of Dutch children and adolescents were clearly identifiable as the Big Five personality factors. Agreeableness appeared to be the most robust personality dimension followed by Emotional Stability. Conscientiousness and Extraversion were somewhat less robust and more sample and observer dependent. Openness was the least consistent factor. Openness in the overall sample and in the subsamples of girls, of youngest children, and in descriptions of parents contained a much broader range of items, including motor activity and/or social and physical attractiveness items. In middle childhood and adolescence, in the subsample of boys, and in descriptions by teachers, the item content of Openness was much more oriented towards high intellectual capacities, curiosity, imagination, fantasy and creativity, resourcefulness and a sense of humor, clearly similar to the characteristics describing adult Openness.

The differences in robustness may partly be due to the number of relevant items for each factor that is represented in the CCQ. Also in the general language more person descriptors may be available for personality dimensions such as Agreeableness and Emotional Stability, whereas relatively few person descriptors are available for Openness (cf. Hofstee & De Raad, 1991; Hofstee, De Raad & Goldberg, 1992).

Not all five factors contained positive as well as negative items. For Agreeableness and Extraversion both positive and negative items were equally represented. These factors were clearly bipolar in the CCQ. Emotional Stability was mainly determined by negative items and might better be indicated as Emotional Instability or Neuroticism. Conscientiousness and Openness mainly contained positive items. The unipolarity of Openness was in accordance with general language. Low Openness in general language is qualified as *u n*intelligent, *un*imaginative, *un*inquisitive, *un*creative, and so forth. (cf. Goldberg, 1992). Negative Conscientiousness items referring to person characteristics as disorganized, negligent, careless, lazy (cf. Goldberg, 1992) seemed to be lacking in the CCQ or did not form a negative pole of the Conscientiousness factor.

The Big Five factors of Agreeableness and Emotional Stability were robust across age levels from preschool into adolescence, across gender of child, and across observers; other Big Five factors were more age, gender or observer specific. In some subsamples, however, even robust factors had fewer high loading marker items, for example, Agreeableness in the parental subsample and Emotional Stability in girls. Some other factors were undifferentiated in some subsamples. For example, in the youngest age group Extraversion was undifferentiated from Emotional Stability and the Openness factor had a greater diversity, encompassing social cognition and social skills, social and physical attractiveness, and motor coordination. These skills were also more characteristic of Openness in girls, while the more usual characteristics typified Openness for boys.

Compared to adult person descriptions of children and adolescents, adolescent peer and self descriptions fitting the FFM were less clearly evident. Some factors could not be traced back to the FFM and coefficients of congruence were generally lower. The factors of Agreeableness, Emotional Stability, and Conscientiousness, however, were clearly identifiable in self and peer descriptions. In peer descriptions the Openness factor could also be found, and in self descriptions traces of Extraversion were present, especially sociability and social and physical attractiveness versus social withdrawal.

In addition to the Big Five factors, NCCQ descriptions provided several other factors. The most conspicuous factor was Motor Activity. Two more factors were Irritability and Dependency. Some authors (e.g., Eaton, 1994; Robins et al., 1994) claim that motor activity in childhood is linked with energetic elements in Extraversion in later life. Indeed, the Motor Activity factor was clearly present in our data in a changing composition over age. Gender differences in Motor Activity were also very obvious, as well as differences in emphasis on motor activity in person

descriptions of different types of observers. In our youngest age group three facets of motor behavior were represented in the Motor Activity factor: specific physical and motor aktivity versus physical cautiousness; facets of low conscientiousness, such as low levels of concentration and low planful and reflective behavior versus talkativeness, hyperactivity, and restlessness; as well as low impulse control — aggressive versus obedient, shy, and reserved behavior. These three facets seemed clearly related to later Extraversion, Conscientiousness and Emotional Stability. In middle childhood and adolescence, Motor Activity was more specifically displayed in motor activity in groups, including motor coordination and restlessness versus daydreaming and a tendency to isolate. At all ages, however, motor activity was much more relevant for boys than for girls. Compared to boys, girls' motor activity items were related to the broader content of Openness including more social skills as well as physical and social attractiveness. In the early adolescent subsample, in parent and teacher descriptions most motor activity items were positioned in Extraversion, indicating that these items eventually may be considered as part of this factor.

The Dependency and Irritability and Immaturity factors tended to be sample and/or observer specific. The Dependency factor gradually disappeared over age and consisted of only two high loading items in adolescence. In teachers' views even at early adolescence, Dependency remained, however, an essential component in their description of pupil personality. The Irritability and Immaturity factor had a similar content as the same factor in Robins et al. (1994). In contrast to their findings, however, this factor in our data seemed less robust being more age and gender specific, than Dependency. Irritability and Immaturity was most characteristic of our youngest age group and more characteristic of girls.

For four of the five factors, similarity was found between our factors and the Big Five categories in the American common language CCQ as determined by Robins et al., (1994). Openness was the exception. Eleven of the 13 Agreeableness items selected by Robins et al. were represented in our Agreeableness factor. The other two items — *Eager to please* and *Manipulates others by ingratiation* — were part of our Dependency factor. The latter item had a secondary loading (.37) on Agreeableness. Eight out of 10 Emotional Stability items were in the same factor. The item *Is easily offended* loaded on our Agreeableness factor, and the item *Others sought to affirm self worth,* was part of our Dependency factor. Five of our seven Conscientiousness items were also considered as such by Robins et al. They place the two missing items loading on our Conscientiousness factor — *Is curious and exploring* and *High intellectual capacity* — with the Openness factor. In several of our subsamples these items actually loaded on the Openness factor. The other four items identified by Robins et al. as belonging to the Conscientiousness category loaded on a diversity of our factors. The item *Can be trusted, is dependable* had a high loading on Agreeableness. The item *Resourceful in initiating activities* loaded on Openness. Two more items, *Persistent, does not give up*, and *Neat and orderly in dress* remained below the critical loading of .35 in the overall sample, but had their highest loading on Conscientiousness (.33 and

.26, respectively). Five of our nine Extraversion items were also marked on this factor by Robins et al. Of the other four Extraversion items of Robins et al. the item *Inhibited and constricted* had a secondary high loading on Extraversion (-.45); two items — *Vital, energetic, lively*, and *Rapid personal tempo* — loaded high on Motor Activity; the item *Prefers non-verbal communication* had its highest — but below-criterion — loading on Extraversion (-.34). Only two out of seven Openness items of Robins et al. were represented in our Openness factor. Our Openness factor was the least consistent of all our Big Five factors and contained social cognitive capacities and physical and social attractiveness items in addition to items that are considered regular for this factor in adult studies. Reasons for the discrepancies between our results and those of Robins et al. may be deviations in our translation of the American CCQ version as well as differences between the common language CCQ (Robins et al., 1994) and the original CCQ. In addition, differences in the age and sex composition of the samples as well as differences in observers and cultural fluctuations may cause different results.

Finally, a few warnings are necessary. Although we had a large overall sample of NCCQ descriptions, in some respects the sample was not very well balanced. Our sample contained nearly twice as many boys as girls and nearly the same ratio of NCCQ descriptions of boys and girls. Also the numbers of parents and teachers were not precisely balanced over age groups and gender of child. The differences in factor solutions between specific subsamples underscore the importance of a large balanced sample of CCQ descriptions. Therefore, some of our findings may be partly determined by the composition of our sample.

DEVELOPMENT OF PERSONALITY AND SOCIOMETRIC STATUS IN ELEMENTARY SCHOOL CHILDREN

This study addresses the development of the relation between personality dimensions and sociometric status during childhood. Our main objective is to examine the nature and strength of the relation between personality dimensions and sociometric status: Which dimensions of children's personality are related to their sociometric status, to what degree, and to which aspects of sociometric status? Do these relations change as children grow older?

We consider personality dimensions and sociometric status measures as two distinctive sets of child characteristics. Personality dimensions are assumed to represent enduring or continuous behavioral styles, revealing consistency over a wide range of different contexts. Sociometric status, the way children are evaluated by their peers, is specific to a single social context: children's peer group. Therefore, sociometric status measures are particularly meaningful within the context of the peer group, although empirical relations with other characteristics of the child may exist.

Theoretical models, such as the model for prosocial behavior (Eisenberg, 1987), or the social information processing model for children's social adjustment (Crick & Dodge, 1994), provide claims about the theoretical relations between personality dimensions and sociometric status during childhood. However, in such theoretical models the precise relation between personality dimensions and peer evaluations are not specifically described and predicted. In this study we aim to provide more detailed information about these relations.

In a peer group children are involved in a large variety of interactions and relationships with other peer group members. In these interactions and relationships, children and their peers organize and adapt their behavior to actual circumstances, including their own and others' characteristics, such as personality traits. During these interactions and relationships children and their peers continuously perceive and evaluate each other and themselves. Children's sociometric status may be regarded as the condensation of the evaluations by their peers of numerous social interactions in the child's peer group. Numerous studies — see Newcomb, Bukowski and Pattee (1993) for a review — have demonstrated that behavioral characteristics are related to sociometric status. Therefore, personality characteristics representing

behavioral styles can be expected to be related to sociometric status. During development, changes in personality, in aspects of sociometric status, and in their interrelations, may occur.

Sociometric status can be measured using sociometric evaluations, collected in groups like school classes. In peer relations research usually two dimensions of sociometric status are measured: acceptance and rejection. Acceptance refers to the degree children are liked by their peers, rejection to the degree children are disliked by their peers. These two dimensions are used to construct two other variables that reflect sociometric status: social preference and social impact. Social preference is usually operationalized as the arithmetic difference between a child's acceptance and rejection scores. Newcomb, Bukowski and Pattee (1993) describe social preference as "a measure of social likability, which reflects the relative extent to which children are liked or disliked by their peers" (p. 99). Social Impact may be operationalized as the arithmetic sum of a child's acceptance and rejection scores. Newcomb et al. (1993) describe social impact as "a measure for social salience or the relative degree to which children are noticed by their peers" (p. 99).

Combinations of these sociometric status measures are often used to determine a child's sociometric status type (Coie, Dodge, & Coppotelli, 1982; Newcomb & Bukowski, 1983). In their recent meta-analysis of sociometric status research Newcomb et al. (1993) summarized empirical evidence on differences between sociometric status groups. They stated, for example, that "popular children's array of compentencies makes them likely recipients of positive peer nominations, whereas high levels of aggression and withdrawal and low levels of sociability and cognitive abilities are associated with rejected peer status" (p. 99). They concluded that sociometric status research has "revealed important processes that underlie the contribution of peer relations to both normative development and developmental psychopathology" (p. 125).

In sociometric status research usually either the variable pairs acceptance and rejection, or preference and impact are used, because these pairs are mathematical transformations of each other. In this study we use both variable pairs as operationalizations of sociometric status, because these pairs may have different developmental meaning or value. For example, Coie and Dodge (1983) have found moderate stabilities over a five year period for peer acceptance and rejection, a somewhat higher stability for social preference but no stability for social impact. These stability differences may be regarded as an indication for such differences in developmental meaning or value.

In this study we use the Five Factor Model (cf. Goldberg, 1990; John, Angleiter & Ostendorf, 1988), to describe children's main personality dimensions. This model is empirically derived from free self- and other-descriptions and is used in many studies on child personality development (Halverson, Kohnstamm & Martin, 1994). The model

distinguishes five general orientations or dimensions: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience. In this study we explore how these five personality characteristics are related to the four sociometric status dimensions described above, and how these relations develop when children grow older. To illustrate this issue, we will give some examples of possible relations, in which we use a description of the five factor model by Van Lieshout and Haselager (1993, 1994).

Extraversion refers to the power and energy that persons exert in their behavior. Power and energy may concern several behavioral domains such as social approach, motor activity, talkativeness, and assertiveness. High levels of Extraversion may coincide with high levels of social impact, because Extraversion is likely to raise social saliency, and changes in Extraversion are likely to be noticed by peers. Extraversion may play an important role in the stage of peer group formation, but its relation with impact may become less salient over time, as children learn to know each other better.

Agreeableness covers the broad domain of prosocial versus antisocial interactions and concerns the orientation of persons to consider interests and goals of interaction partners in achieving their own interpersonal goals. Therefore, high levels of Agreeableness may go together with high levels of peer acceptance or social preference. Agreeableness and sociometric status both refer to peer group phenomena. Therefore, this relation may be expected to be relatively strong and stable. This relation may even become more important over time, for example, if children acquire more skills in anticipating interests and goals of peers, but also because children may develop friendships and become attached to each other.

Conscientiousness reflects a person's orientation to strive for standards of excellence and dependability in achievement and work. Because standards of excellence may play an important role in pursuing group goals, higher levels of Conscientiousness may concur with higher levels of peer acceptance or social preference. In elementary school, this relation may grow stronger as children grow older, for example, as the importance of achievements in group oriented activities, like team sports, increases.

In Emotional Stability, an emotionally calm, stable, and relaxed attitude, together with self-reliance and -confidence, is contrasted with aspects of neuroticism, such as guilt, emotional distress, fearfulness, anxiety, emotional disorganisation under stress, and low self esteem. Higher levels of Emotional Stability may concur with higher levels of peer acceptance or social preference. Emotionally stable peers will be more predictable and therefore easier to deal with. As children grow older this may become less important for them, which may lead to a decrease in the relation between Emotional Stability and sociometric status.

Openness to experience does not refer to moral qualities like sincerity or veracity, but concerns the child's curiosity and openness for new ideas and experiences, as well as the capacity to assimilate these ideas and experiences. Such openness includes both intelligence and creativity. These characteristics may both be appreciated and depre-

ciated by peers, for all kinds of reasons. We expect Openness to be unrelated to sociometric status.

Personality characteristics may not only affect sociometric status, as the above descriptions suggest. Sociometric status may also affect personality. For example, chronic and persistent rejection by peers may result in social withdrawal and concur with decreasing Extraversion and Emotional Stability. Other children may respond to rejection with increasing externalizing behaviors that concur with an increase of Extraversion. These examples illustrate that the development of relation between sociometric status and personality may be very complex. Therefore, we explored the nature of this relation and its development without more specific hypotheses.

Several alternative expectations about the development of the strength of the relation between sociometric status and personality may be formulated. The strength may remain stable or vary, for example increase or decrease over time. For short periods (for example, days or weeks) the strength of this relation may be expected to be fairly stable. In general, neither personality nor peer evaluations are likely to show great changes in such short intervals. This study is about an episode of five elementary school years. In such long intervals substantial changes in both personality and sociometric status are less unlikely and this may be reflected in variation of the strength between sociometric status and personality dimensions. Numerous personal and social phenomena may influence the development of the strength of the relation between sociometric status and personality during elementary school, including interindividual differences, group composition and formation processes, group management (including teacher style) and changes in these characteristics. The relations of most of these phenomena with personality development, are hardly studied. We had no solid a priori ideas about long term effects of these phenomena on the relation between personality and sociometric status in elementary school. Therefore, we explored the development of the strength of this relation without specific directional hypotheses.

We approached our research questions in several ways. Bivariate correlations gave us a first impression of relations between personality dimensions and sociometric status measures. Using multiple regression analyses we examined concurrent multivariate relations between personality and sociometric status measures. With linear equation modelling we tested the main trends in the development of the relation between personality and sociometric status dimensions.

METHOD

SUBJECTS

The longitudinal sample was a group of initially 231 predominantly caucasian boys. When this group was selected in 1986, 114 of these boys attended 54 different kindergarten classes (age: M = 5.2 years, SD = 8.2 months), and 117 boys attended 43 different first grade classes (age: M = 6.9 years, SD = 6.7 months). These classes were from 35 elementary schools serving lower and middle-class populations in the Nijmegen-Arnhem area of the Netherlands (Cillessen, 1991; Cillessen, Van IJzendoorn, Van Lieshout & Hartup, 1992). The boys were selected because of their sociometric status type and possible acquaintance with other subjects. Boys with a rejected or popular sociometric status type were overrepresented (35 and 38 % respectively), average status boys were underrepresented (22%), the percentage neglected boys was fairly usual (5 %), while controversial boys were not included (see below for the measurement of sociometric status). Reasons for the composition of this initially stratified sample are discussed in Cillessen (1991). In the second and third measurement wave, one and five years later, respectively, 210 (91%) and 190 (82 %) boys participated again. In Wave 3 the boys were in grades 5 to 8 of elementary school.

MEASURES

Sociometric status. In Wave 1 and Wave 2, acceptance and rejection scores were gathered in individual interviews using the method of Asher, Singleton, Tinsley and Hymel (1979). This sociometric method uses a 3-point rating scale represented by three boxes showing either a sad, neutral or happy face. Children were instructed to rate an other child by pointing to the happy-face box when they liked the child, to the sad-face box when they did not like the child, or to the neutral-face box when they did not know whether they liked or disliked the child. All children in class rated all boys in their class in random order. Before rating a boy, the child was asked to identify the rated boy by singling him out on a class group photograph. Raw scores for acceptance and rejection were computed by counting the number of times a subject was rated by classmates as liked or disliked, respectively.

In Wave 3, a written sociometric questionnaire was administered in the class. After a brief verbal instruction children were asked to write down the names of the three other children in class they liked most, and then the names of the three children they disliked most. Male and female nominations were allowed. Raw scores for acceptance and rejection were computed by counting the number of times a subject was nominated by classmates as liked or disliked, respectively.

In all three waves raw scores for social preference and social impact were computed by subtracting and summing up respectively, the raw acceptance and rejection scores. Furthermore, in all three waves the raw acceptance and rejection scores were transformed to probability-scores using the generalized binomial

distribution (Newcomb & Bukowski, 1983; Ten Brink, 1985). Raw social preference and social impact scores were transformed to standard (z-)scores. Both transformations were used in order to correct for distribution differences caused by circumstances like class size differences.

In Wave 1, the probability scores for acceptance and rejection were used to determine the sociometric status type of subjects, following the method of Newcomb and Bukowski (1983). Wave 1 sociometric status typing was used to compose the original sample (see above).

Personality. In all three waves person descriptions were collected using the Nijmegen California Child Q-sort (NCCQ; Van Lieshout et al., 1986), a Dutch version of the California Child Q-set (CCQ; Block & Block, 1980). In Wave 1, teachers gave person descriptions of 167 children. In Wave 2, teachers described 130 children. In Wave 3, 56 children were described by teachers, and 186 children by their mothers. From these person descriptions scale scores for the dimensions of the Five Factor Model were calculated independently for each wave and rater, using a method developed by Van Lieshout and Haselager (1993, 1994). This calculation is done by summing up scores on items with high loadings on factors in a principal component analysis, that could be interpreted within the five factor model. The five personality scales are based on different numbers of items. To make it possible to compare these scales with each other, raw sum scores on scales were divided by the number of scale items. The internal consistency of these scales was measured with Cronbach's α. The average α for Wave 1 teacher descriptions was .84 (range .79 — .91). The Wave 2 average α for teacher descriptions was .83 (range .73 — .92). The Wave 3 average α for teacher and mother descriptions was .82 (range .75 — .88) and .73 (range .58 — .84), respectively.

The number of Wave 3 person descriptions by teachers was rather low. Therefore, we combined the Wave 3 teacher and mother scale scores into an "adult person description": If possible ($\underline{n}$ = 51) the raw teacher and mother scale scores were averaged, otherwise ($\underline{n}$ = 121) the available description, either by teacher ($\underline{n}$ = 5) or by mother ($\underline{n}$ = 116) was used. Using analysis of variance, we checked if this combining of Wave 3 mother and teacher personality descriptions was acceptable. In this ANOVA, we tested differences on sociometric status measures between boys whose personality was or was not described by teachers or mothers. Being described or not by teachers and by mothers were used as two two-level between subject factors. Sociometric status measure, being either standardized peer acceptance or standardized peer rejection, was used as the only two-level within subject factor. Neither for mothers nor for teachers did we find any rater effect. Furhtermore, we found no interactions between being rated by mother or not, or being rated by teacher or not, and sociometric status measure. We concluded that there were no sociometric status differences between subgroups of boys that were described by different combinations of raters. Possible side-effects of computational procedure of the Wave-3 personality variables on their relation with sociometric status are elaborated further in the results section.

RESULTS

Table 4.1 presents the matrix of concurrent and longitudinal product-moment inter-correlations for all 21 main variables in this study. These variables are grouped according to domain, variable, and measurement wave. There are two domains, adult personality descriptions of subjects, and sociometric status ratings of subjects. Within the domain of personality descriptions there are five variables, corresponding to the five factor model. Within the domain of sociometric status ratings there are two variables, peer acceptance and peer rejection. Each variable is measured three times. This way of grouping of variables in the table results in a series boxes of nine inter-correlations. In each box all possible concurrent and longitudinal correlations between a pair of variables are grouped together. The concurrent correlations on the diagonal of each box are underscored. The average number of cases on which the correlations in Table 4.1 are computed is 145 (range: 103 — 231). Given the lowest occurring number of cases (103) correlations with an absolute value greater than .20 and .25 are significant at levels of .05 and .01, respectively. The incomplete boxes on and directly below the main diagonal of the matrix represent intercorrelations between pairs of same variables, measured at different times. These correlations are stability indices. The average stability in the personality domain is .42 (range .17 — .65), in the socio-metric status domain the average stability is .43 (range .32 — .58).

The correlations in the lower left rectangle of the matrix are of main interest in this study. Together these 90 correlations describe the relation between personality and sociometric status in our sample and its development over time. Inspection of this lower left rectangle part of the matrix suggests that the personality variables Extraversion and Emotional Stability are not related to sociometric status: their corre-lations with peer acceptance and rejection tend to approach zero and to be not significant. Openness to experience appears to be marginally related to the sociometric status measures, while Conscientiousness and Agreeableness are moderately related to them. The two sociometric status measures appear to be more or less equally strong, but oppositely, related to the personality measures. The concurrent correla-tions (underscored in the table) tend to approach zero over time, suggesting a decrease of the strength of the relation between personality and sociometric status.

Correlations regarding social preference and social impact are reported in Table 4.2. The structure of this table is the same as Table 4.1, although correlations within the personality domain are not repeated here. The pattern of stability-indices for social preference and social impact appears to be different, when compared to accep-tance and rejection. The stabilities of social preference are in general higher than those of acceptance or rejection, while the stabilities of social impact are in general lower than those of acceptance or rejection. In fact, social impact appears to have no stability at all, since none of the stability-indices are significant.

TABLE 4.1
Product-Moment Intercorrelations Among Personality and Peer Acceptance or Rejection

CONSTRUCT	Extraversion			Agreeableness			Conscientious-ness			Emotional Stability			Openness to Experience			Peer Acceptance			Peer Rejection		
WAVE	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Extraversion																					
1	1 00																				
2	56	1 00																			
3	50	25	1 00																		
Agreeableness																					
1	-10	-24	-07	1 00																	
2	-20	-02	-12	59	1 00																
3	-02	-04	13	42	17	1 00															
Conscientious-ness																					
1	-08	-03	-14	47	34	15	1 00														
2	-02	-01	-08	35	49	14	65	1 00													
3	-04	-01	-13	27	18	38	41	56	1 00												
Emotional Stability																					
1	55	49	33	-03	-01	-08	31	19	-02	1 00											
2	27	54	17	03	26	-06	38	49	22	51	1 00										
3	31	23	34	14	02	25	16	24	38	32	34	1 00									
Openness to Experience																					
1	45	28	21	32	21	03	43	37	19	44	39	31	1 00								
2	27	44	12	09	35	01	33	43	18	42	66	20	51	1 00							
3	14	07	15	19	-11	26	15	08	25	06	-00	39	31	18	1 00						
Peer Acceptance																					
1	-02	02	-05	45	42	16	42	39	26	07	16	06	26	20	06	1 00					
2	-05	-03	06	56	54	28	37	37	27	-01	10	09	28	21	11	53	1 00				
3	-06	08	07	19	20	25	17	11	14	01	11	10	15	04	04	34	38	1 00			
Peer Rejection																					
1	02	-03	02	-45	-39	-22	-41	-09	-28	00	-14	-05	-23	-24	-06	-86	-54	-33	1 00		
2	08	05	-01	-51	-52	-23	-37	-38	-23	08	-11	-06	-21	-17	-03	-55	-88	-38	58	1 00	
3	-01	-04	-09	-36	-28	-27	-20	-22	-22	06	-13	-13	-08	08	04	-30	-37	-47	32	40	1 00

Note Concurrent correlations are underscored. Given the lowest occurring number of cases (103), correlations with an absolute value greater than 20 and 25 are significant at levels of 05 and 01, respectively

Again, the correlations in the left rectangle of the matrix in Table 4.2 are of main interest for this study. Inspection of this part of the matrix suggests, as in Table 4.1, that the personality variables Extraversion and Emotional Stability are not related to sociometric status: their correlations with social preference and impact tend to approach zero and to be not significant. Openness to experience appears to be marginally related to social preference, while Conscientiousness and Agreeableness are moderately related. In general, social impact appears to be unrelated to any personality variable. The only two exceptions are the correlation of -.28 between Wave 1 Agreeableness and Wave 3 social impact, and the correlation of .20 between Wave 1 Conscientiousness and Wave 2 social impact. Given the usual significance level (.05), two out of the 45 correlations between a social impact measure and a personality measure may be expected to be significant by chance. Therefore, these two exceptions are further ignored. The pattern of correlations between personality variables and social preference seems to be more or less the same as the pattern of the absolute values of the correlations between personality variables and peer acceptance or rejection.

In order to further explore the nature of the relation between personality and peer relations, a series of multiple regression analyses was performed. In each analysis, the dependent variable was a variable from the domain of sociometric status, being peer acceptance, peer rejection, impact or preference. So we had four dependent variables, each variable measured in three waves. Therefore, we completed 12 multiple regression analyses. In each analysis, we used the five same-wave measures from the personality domain as predictors. We used backward elimination as method of predictor testing. So in the first step of the regression analysis all five personality factors were used as predictors. In following steps the weakest predictors were eliminated one at a time, until all variables in the regression equation had at least a significance level of .10. Results of these analyses are presented in Table 4.3. In the first column, the dependent variable and the measurement wave are presented. The second column presents the multiple correlation coefficient ($\underline{R}$). Only significant ($\underline{p} <$ .05) correlation coefficients are presented. The table (bottom panel) shows that personality dimensions do not predict impact. Personality dimensions predict peer acceptance, rejection, and preference more or less to the same degree: the multiple correlation coefficients (R) are more or less the same in each wave. Furthermore, the same predictors tend to contribute to each dependent variable. In concordance with what was already shown in Tables 4.1 and 4.2, Extraversion, Openness to Experience and Emotional Stability do not predict any aspect of sociometric status. Only openness had some low significant correlations with peer acceptance or rejection in Wave 1 or 2. This might be a side effect of the relatively high correlation between openness and Agreeableness or Conscientiousness. Table 4.3 shows that these two personality dimensions moderately predict aspects of sociometric status. Agreeableness is the most important predictor, Conscientiousness had a less strong contribution.

TABLE 4.2

Product-Moment Intercorrelations Among Personality and Social Preference or Impact

CONSTRUCT	Extraversion			Agreeableness			Conscien-tiousness			Emotional Stability			Openness to Experience			Social Preference			Social Impact		
WAVE	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Social Prefe-																					
rence 1	-03	-02	-03	48	44	20	41	42	31	06	16	07	23	21	11	100					
2	-10	-04	00	57	55	31	40	42	33	-04	15	09	29	28	16	61	100				
3	02	07	10	32	30	29	19	18	26	-10	-02	15	16	-07	08	36	54	100			
Social Impact																					
1	09	14	01	02	06	-04	09	16	04	11	18	11	14	09	-06	24	12	04	100		
2	11	10	08	16	11	17	20	13	14	17	04	04	13	10	11	17	24	16	14	100	
3	04	04	-04	-28	-18	-14	-06	-09	-13	18	18	-04	-06	15	-03	-11	-24	-44	04	06	100

Note. Concurrent correlations are underscored. Given the lowest occurring number of cases (103), correlations with an absolute value greater than .20 and .25 are significant at levels of .05 and .01, respectively.

The squared multiple correlation coefficients of Table 4.3 are a measure for the proportion of variance shared by personality measures and a sociometric status variable. This gives a good impression of the strength of the relation between personality and sociometric status. When acceptance or rejection are used as criteria, the proportion of variance shared by personality and sociometric status measures lies between 6 and 29 % . Social impact shares no variance with personality. When social preference is used as criterion, the proportion of shared variance lies between 11 and 32 %. Apparently, social preference subsumes the explained variance of both acceptance and rejection, whereas social impact is irrelevant for the relation between personality and sociometric status.

Table 4.3 suggests a decrease in the strength of the relation between dimensions of personality and sociometric status between Waves 2 and 3. This apparent decrease might be caused by the Wave 3 combining of teacher and mother personality descriptions (done to compensate for the low number of teacher personality descriptions). Therefore, we repeated the analyses for Wave 3 with teacher descriptions only (n = 56). The multiple correlation coefficients for acceptance was .25 but was not significant, although the value itself is the same as for the analysis with combined teacher and mother ratings. Using teacher descriptions as predictors, the multiple correlation coefficient for rejection was .32, was not significant again for social impact, and was .34 for social preference. Again Agreeableness was the only significant predictor in these analyses. In sum, using teacher personality descriptions as predictors gives essentially the same results as using a combination of teacher and mother personality descriptions.

To trace the main trends in the development of the strength of the correlations presented in Tables 4.1 and 4.2, a series of LISREL analyses were performed. In these analyses we used an adaptation of a method, extensively described by Green (1992) and originally developed by Werts, Rock, Linn, and Jöreskog (1976), in which equality of correlation matrices is tested. Green used this method to test whether two different variables had equivalent stabilities over three measured occasions, and compared correlations among equal variables measured at different occasions. We used the same method to compare correlations among different variables measured at equal occasions, that is simultaneously.

TABLE 4.3

Main Results of 12 Multiple Regression Analyses: Prediction of Sociometric Status from Personality, separately in 3 Waves

Dependent Variable			Predictors (β)					
Wave	R	Extra-version	Agree-ableness	Conscien-tiousness	Emotional Stability	Openness		n
Peer Acceptance								
1	.50	--	.32	.27	--	--		167
2	.54	--	.54	--	--	--		130
3	.25	--	.25	--	--	--		172
Peer Rejection								
1	.50	--	-.34	-.25	--	--		167
2	.54	--	-.44	-.16	--	--		130
3	.30	--	-.21	-.14	--	--		172
Social Preference								
1	.52	--	.37	.23	--	--		167
2	.57	--	.45	.19	--	--		130
3	.33	--	.23	.17	--	--		172
Social Impact								
1	--	--	--	--	--	--		167
2	--	--	--	--	--	--		130
3	--	--	--	--	--	--		172

Note. Only significant ($p < .05$) multiple correlations (R) and standardized regression coefficients (β) of predictors in the final regression equations (corresponding p's < .10) are presented.

Four different models were tested, using several different parts of the intercorrelation matrices presented in Tables 4.1 and 4.2. Based on our impression from the regression analyses we formulated as a hypothesis that the correlation patterns in two subsequent waves are different from each other. The corresponding null-hypothesis is that the patterns of intercorrelations are the same in the two waves. This is tested by simultaneously comparing the concurrent intercorrelations of same pairs of variables in two subsequent waves with each other. These intercorrelations are underscored in Tables 4.1 and 4.2. For each model four versions were tested. First, we distinguished two sets of sociometric status variables, one set with acceptance and rejection (A&R-version, referring to Table 4.1), and one set with social preference and social impact (P&I-version, referring to Table 4.2). Furthermore, we separately tested differences between Wave 1 versus 2, and Wave 2 versus 3.

In our first model we tested the hypothesis that the patterns of intercorrelations among variables from both domains were different in two waves. Seven variables from both domains — five adult personality descriptions of subjects, and two sociometric status ratings of subjects — were used. The results of these analyses are shown in Table 4.4. For each model and each version of it the χ^2 test and corresponding degrees of freedom, significance level and χ^2/df-ratio are presented in columns two to five of Table 4.4. Columns six and seven present two absolute fit-indices, the goodness of fit index (GFI) and the Root-Mean-Square-Residual index (RMSR), that are both described by Jöreskog and Sörbom (1986). The two most right columns describe two so-called incremental fit indices (Marsh, Balla & McDonald, 1988; Wood & Brown, 1994), the Tucker-Lewis Index (TLI) and the Bentler-Bonett Normed Fit Index (BBI). As a null model — required in the use of this incremental fit indices — we used a model in which all correlations are zero. Below we use the Tucker-Lewis Index as the guiding indicator for model evaluation. Other indices will be used as illustrations.

The results on model 1 suggest that the model fits very well for Waves 1 and 2, meaning that the correlation patterns within and between domains in Waves 1 and 2 are essentially the same. This is indicated by TLI's on both the acceptance and rejection version and the preference and impact version. These TLI's are greater than unity. All other fit-indices are in line with this conclusion. The test results for Waves 2 and 3 are ambiguous: the TLI's on both versions indicate a bad fit of the model, while other indices (e.g. GFI and BBI) suggest that the correlation patterns in Waves 2 and 3 differ from each other.

In the second model the same hypothesis was tested as in the first model, but restricted to the five personality variables. This corresponds with the concurrent correlations in the boxes in the upper left triangle in Table 4.1. Table 4.4 shows the results. They are essentially the same as for the first model: There are no differences between Waves 1 and 2 correlation matrices of personality variables.

TABLE 4.4

Main Results of 14 LISREL Analyses: Differences Among Waves Within and Between Personality and Sociometric Status Domains

Model description	Model Fit Indices							
	Stand-Alone						Incremental	
	χ^2	df	p	χ^2/df	GFI	RMSR	TLI	BBI
1. Simultaneously within and between both Domains								
A&R-version[1]								
Waves 1 & 2	20.00	21	.521	.952	.974	.044	1.005	.979
Waves 2 & 3	61.35	21	<.001	2.921	.930	.131	.677	.903
P&I-version[1]								
Waves 1 & 2	18.24	21	.634	.869	.976	.041	1.021	.973
Waves 2 & 3	56.75	21	<.001	2.702	.935	.102	.621	.886
2. Within Personality Domain								
Waves 1 & 2	14.63	10	.146	1.463	.973	.051	.956	.972
Waves 2 & 3	17.88	10	.057	1.788	.967	.088	.880	.947
3. Within Sociometric Status								
A&R-version								
Waves 1 & 2	.54	1	.461	.540	.997	.026	1.011	.997
Waves 2 & 3	41.08	1	<.001	41.080	.848	.262	-.372	.728
P&I-version								
Waves 1 & 2	0.00	1	.957	.000	1.000	.002	1.204	1.000
Waves 2 & 3	27.62	1	<.001	27.620	.887	.170	-1.273	.565
4. Between the two Domains								
A&R-version								
Waves 1 & 2	6.45	10	.776	.645	.991	.020	1.038	.993
Waves 2 & 3	10.90	10	.365	1.090	.980	.051	.985	.983
P&I-version								
Waves 1 & 2	3.98	10	.948	.398	.994	.018	1.096	.994
Waves 2 & 3	17.17	10	.071	1.717	.978	.054	.840	.966

Note. GFI: Goodness-of-Fit index; RMSR: Root-Mean-Square-Residual index; TLI: Tucker-Lewis nonnormed fit Index; BBI: Bentler-Bonett normed fit Index. [1]: A&R-version, Acceptance and Rejection as sociometric status measures; P&I version, Preference and Impact as sociometric status measures.

All fit-indices support this conclusion. Furthermore, the TLI suggests differences between Waves 2 and 3, but the other fit indices do not support this conclusion. Inspection of Table 4.1 illustrates the nature of differences between the three waves. In Wave 1 the average of the absolute intercorrelations is .32 (variance: .034). In Wave 2 this average is .37 (variance: .046). In Wave 3 the average of the absolute intercorrelations is .26 (variance: .011). So between Waves 2 and 3 there appears to be a general decrease in the strength of the relations among the five factors. The most salient change is the increasing independence of Openness to Experience, that is reflected in the decreasing absolute values of correlations with the other four factors of the five factor model. Openness to experience also has the lowest longitudinal stability. Furthermore, the relations of Emotional Stability to other factors change over time: the correlation with Extraversion decreases, whereas it increases with Agreeableness.

In the third model the same hypotheses were used as in the first two models, but now restricted to the two pairs of variables within the domain of sociometric status. This corresponds with the concurrent correlations in the box in the lower right triangle in Table 4.1 (for acceptance and rejection) and Table 4.2 (for preference and impact). Table 4.4 shows that the model of equal correlation patterns clearly fits very well for both versions in Waves 1 and 2, and unambiguously does not fit for both versions of Waves 2 and 3. This indicates big changes in the relation between sociometric status variables between Waves 2 and 3. Table 4.1 illustrates that the strength of the relation between peer acceptance and peer rejection decreases over time. Table 4.2 illustrates that the nature of the relation between social preference and social impact radically changes from low positive to moderately negative. This radical change is reflected in the negative value of the TLI, which by itself is curious. It suggests that a no-correlation-model has a better fit than our model of stable correlations. This fits nicely with the longitudinal changes in this part of the matrix.

In the fourth and final model we tested the hypothesis that the concurrent correlations in the lower left rectangle in Tables 4.1 and 4.2 were different in the three waves. Again this hypothesis is the same as in previous models, but restricted to a subset of the correlation matrices, in this case the lower left rectangles in Tables 4.1 and 4.2. These correlations are between-domain correlations: One variable is from the domain of personality descriptions, the other is from the sociometric status domain. This model may be considered the core model in our search for the development of the relation between personality and sociometric status. Table 4.4 shows that the model of equal correlation patterns fits well for both versions in Waves 1 and 2. The model does also fit for Waves 2 and 3, with only one exception: the TLI on the social preference and impact version suggests differences between Waves 2 and 3 in the relation between sociometric status and personality.

TABLE 4.5

Main Results of Five LISREL Analyses: Differences Among Wave 2 and 3 Within and Between Teacher Rated Personality and Sociometric Status Domains

Model description	Model Fit Indices							
	Stand-Alone						Incremental	
	χ^2	df	p	χ^2/df	GFI	RMSR	TLI	BBI
1. Simultaneously within and between both Domains								
A&R-version[1]	21.03	21	.457	1.001	.931	.119	.999	.920
P&I-version[1]	17.73	21	.666	.844	.940	.087	1.113	.918
2. Within Personality Domain								
	5.27	10	.872	.527	.972	.063	1.264	.958
4. Between the two Domains								
A&R-version	3.70	10	.960	.370	.986	.049	1.331	.986
P&I-version	5.00	10	.891	.500	.982	.055	1.363	.977

Note. GFI: Goodness-of-Fit index; RMSR: Root-Mean-Square-Residual index; TLI: Tucker-Lewis nonnormed fit Index; BBI: Bentler-Bonett normed fit Index. [1]: A&R-version, Acceptance and Rejection as sociometric status measures; P&I version, Preference and Impact as sociometric status measures.

We examined the possibility that the ambiguity in results on Waves 2 and 3 was caused by the Wave 3 combining of teacher and mother personality descriptions (done to compensate for the low number of teacher personality descriptions). Therefore, we repeated the analyses for Waves 2 and 3 with teacher descriptions only. Results of these analyses are presented in Table 4.5. The table clearly shows a good fit of the three models for Waves 2 and 3 in this small subset of children ($n = 37$). So the correlation matrices for Wave 2 and Wave 3 teacher descriptions are essentially the same in this subset. The ambiguities we reported for the complete sample are probably caused by different personality descriptions of mothers.

The results of all LISREL analyses may be summarized in the following three statements: 1. The pattern of intercorrelations within the domain of personality tends to be stable during elementary school, especially when teacher personality descriptions are used in subsequent waves; 2. The pattern of intercorrelations in the domain of sociometric status changes rather radically during elementary school; 3. The pattern of correlations between personality and sociometric status tends to be stable during elementary school, especially when teacher personality descriptions are used.

The results of the multiple regression and LISREL analyses appear to be dependent on the sociometric status variable pair that is used. Results for the acceptance and rejection pair are not the same as for the preference and impact pair. In order to help interpret these differences, the intercorrelations between these pairs of sociometric variables are presented in Table 4.6. The table illustrates the continuities and changes within the sociometric status domain during the three waves. The relation between social preference and acceptance or rejection stays more or less the same over the years. In same waves (correlations underscored in Table 4.6), acceptance has a high and positive correlation with social preference, and rejection has a high and negative correlation with social preference. The relation between social impact and acceptance or rejection changes over the years. In Wave 1 impact is moderately and positively correlated to acceptance and this correlation clearly decreases to a low correlation in Wave 3. In Waves 1 and 2 social impact has a zero correlation with rejection, in Wave 3 impact has a moderate and positive correlation with rejection.

TABLE 4.6

Intercorrelations Among 2 Pairs of Sociometric Variables:

Acceptance and Rejection with Social Preference and Social Impact

Wave	Variable	Wave 1		Wave 2		Wave 3	
		Preference	Impact	Preference	Impact	Preference	Impact
Wave 1 (N = 231)							
	Acceptance	.92***	.44***	.57***	.20**	.36***	-.09
	Rejection	-.90***	-.09	-.58***	-.19**	-.41***	-.15*
Wave 2 (n = 210)							
	Acceptance	.55***	.13	.92***	.38***	.45***	-.17*
	Rejection	-.57***	-.13	-.90***	-.10	-.48***	.22**
Wave 3 (n = 190)							
	Acceptance	.31***	.10	.41***	.15*	.75***	.16*
	Rejection	-.31***	-.03	-.46***	-.13	-.82***	.58***

Note. Concurrent correlations are underscored.

***: $p < .001$; **: $.001 < p < .010$; *: $.010 < p < .050$;

DISCUSSION

This study showed that the relation between personality and sociometric status in boys is stable during elementary school, despite substantial instability within the sociometric status domain. This study further demonstrated that during elementary school only two dimensions of personality, Agreeableness and Conscientiousness, are consistently related to sociometric status, and mainly to one aspect of it, namely social preference.

Agreeableness and Conscientiousness have in common that they characterize qualities of children's orientation towards goals. Agreeableness reflects children's orientation on interpersonal goals. It covers the broad domain of prosocial versus anti-social interactions and concerns the enduring and consistent orientation of children to consider interests and goals of interaction partners in achieving their own inter-personal goals. We found the relatively strongest and most stable relation between Agreeableness and sociometric status. Apparently, the way in which children pursue prosocial versus antisocial goals in group interactions and relationships, is related most to their peers' opinions about their sociometric status. In Conscientiousness there is also an orientation towards goals. It reflects children's orientation to strive for standards of excellence and dependability in achievement and work. As expected, we also found a relatively strong and stable relation between Conscientiousness and sociometric status. So, the way in which children are oriented towards standards of excellence, also effects their peers' opinions about their sociometric status.

A goal orientation is absent in the personality factors that were found to be not or marginally related to sociometric status, namely Extraversion, Emotional Stability and Openness to Experience. In sum, during elementary school, the nature or content of the relation between personality and sociometric status is primarily, consistently and largely determined by peer evaluations of children's individual and interpersonal goal management.

Intercorrelations within the domain of sociometric status tend to be stable over time between Waves 1 and 2 and unstable over time between Waves 2 and 3. This is reflected in a decrease of the correlation between acceptance and rejection, but more dramatically in a change in the direction of the correlation between social preference and social impact. In Waves 1 and 2 — at the beginning of children's elementary school career — impact and preference are positively related. In Wave 3 — near the end of elementary school — they are negatively related. Second, in all three waves, social preference appears to be the most strongly related to personality dimensions, whereas social impact is unrelated to personality. Third, social preference appears to have substantial longitudinal stability, social impact has hardly any stability. Although some of these findings may be caused by differences in sociometric status

measurements between Waves 1 and 2 versus Wave 3, our findings are in line with other studies on continuities and changes in sociometric status (Coie & Dodge, 1983). Taken together, it appears that social preference completely describes both the stability within the domain of sociometric status, and completely covers the relations of peer acceptance and rejection with personality. In other words, the construct social preference is the most meaningful psychological construct within the sociometric status domain.

The instability of social impact suggests that a child's social impact is a more or less situationally determined, and not a structural or consistent characteristic of children's sociometric status. Social impact may frequently or rapidly change, maybe due to various events within or outside the peer group. These events may facilitate large proportions of occasional nominations given by peers in sociometric status interviews or questionnaires. These occasional nominations may be mainly determined by actual circumstances and may also be rather independent of personality characteristics of the child. The absence of a relation between Extraversion and social impact was not expected, but it suits with our interpretation of social impact as a situational and not a psychological aspect of sociometric status.

Both time intervals between the three measurement waves in this study were not equal. As noticed above, also continuities and changes between these two intervals were not the same. Across the one-year-interval between Waves 1 and 2 relations among variables both within and between the domains of personality and sociometric status were stable. Across the four-year-interval between Waves 2 and 3 relations between personality and social preference were stable, but relations within the domain of sociometric status showed longitudinal change. These different findings between the two intervals may only reflect differences in the length of the interval, but they may also reflect changes in interpersonal evaluation processes that take place during elementary school years. These changes are indicated by the reversal in the relation between social preference and social impact, that takes place between Waves 1 and 2 versus Wave 3.

These changes in interpersonal evaluation processes appear to influence the strength of some relations between personality variables and sociometric status variables, as was indicated by the multiple regression analyses reported in Table 4.3. Nevertheless, the structure of the relations between personality and sociometric status stays essentially the same across the three measurement waves, as was shown by the LISREL analyses, especially in our fourth model, reported in Table 4.4 and 5.

In sum, we found a low to moderate but stable relation between personality and sociometric status in this study. Social preference was found to be the best indicator for the relation with personality. An estimation of the overall strength of the relation between sociometric status and personality is the proportion of variance shared by personality and social preference. This proportion was found to be between 11 and 32 %.

The apparent stability of the relation between social preference and personality during a five year period that covers the ages from 5 to 12 year in elementary school, is by itself remarkable, given the fact that peer relations become more important, and peer interactions become more frequent, as children grow older (Hartup, 1983). An initial speculation to explain the stability of this relation may be the idea of balance: The overall strength of the relation between personality and social preference reflects a balance between personality and peer group influences. Individual children tend to behave according to their personality, but also have to adapt their behavior to peer group demands. In these adaptation processes children may try to optimize the ratio between their psychological efforts or costs, and their benefits of peer preference. This ratio is reflected in the strength of the relation between personality and social preference. It might be the level at which peer preference is combined optimally with the expression of individual personality differences. Relationships within peer groups, and children's personality characteristics, may tend to vary around this optimum level, which suggests an apparent stability in the strength of this relation.

BEHAVIORAL SIMILARITIES BETWEEN FRIENDS AND NONFRIENDS IN MIDDLE CHILDHOOD

Common ground is necessary to the formation and maintenance of friendships throughout the life course. Common interests and attitudes contribute both to making friends and keeping them from early childhood through old age (Hess, 1972). Accordingly, one expects friends to be similar to one another in abilities, attitudes, and life style, with these similarities deriving from both friendship selection and the mutual socialization that occurs between friends once a relationship has been established. This study was designed to establish the extent to which these similarities exist in middle childhood.

The empirical evidence shows, first, that certain macrosystemic social forces make it more likely for similar individuals to meet than for dissimilar individuals to do so. Age-grading and school segregation, for example, contribute to friendship similarities in chronological age, socioeconomic status, and race (Epstein, 1989; Kupersmidt, DeRosier, & Patterson, 1995). Second, strangers are more attracted to one another when their attitudes and actions are similar than when they are different. Rubin and his associates (Rubin, Lynch, Coplan, Rose-Krasnor, & Booth, 1994) report that when children (strangers) are attracted to one another, the social cognitive dimensions of their play are more similar than when children are not attracted to one another. Third, among children who are becoming friends, communication between them becomes increasingly connected, conflicts are confronted and managed successfully, and similarities between them are stressed (Gottman, 1983). Presumably, these similarities support continued interaction between friends over time whereas differences and conflict do not. Fourth, adolescents who remain friends are known to become more and more similar to one another through mutual socialization (Kandel, 1978a). At any one time, these similarities derive from an admixture of selection and socialization effects whose relative contributions are known to vary from attribute to attribute (Cohen, 1977; Fisher & Baumann, 1988).

Studies with children based on behaviorally-referenced assessments are scarce. Scattered results suggest that behavioral concordances may be relatively modest. Challman (1932), based on behavior ratings with preschool-aged children, showed that friends were more similar than nonfriends in sociability. In addition, male but not female friends were more similar than nonfriends in physical activity whereas female

but not male friends were more similar in attractiveness of personality and social network size. Other investigations show that school-aged children who are similar in aggression and withdrawn behavior are more likely to become friends than not (Kupersmidt et al., 1995), but this does not establish the concordance existing between friends against the baseline existing for nonfriends. Similarities among children and their friends have also been reported for personal construct use (Erwin, 1985), self-reports (Hymel & Woody, 1991; Gest, Graham-Bermann & Hartup, 1991), and within social networks (Ladd, 1983; Cairns & Cairns, 1994) but, otherwise, not among behavioral attributes.

Similarities among friends in early and middle childhood need to be better documented owing to a growing awareness that these concordances are developmentally significant (Hartup, 1996). Children who are normatively conventional and who have conventional friends, for example, become even more conventional over time (Ball, 1981; Epstein, 1983; Kandel & Andrews, 1986). On the other hand, children with antisocial friends become more antisocial over time, especially when they themselves are at risk for antisocial behavior (Ball, 1981; Berndt & Keefe, 1992; Dishion, Patterson, & Griesler, 1994; Dishion, Andrews, & Crosby, 1995).

In order to determine whether friends are more concordant behaviorally than nonfriends in middle childhood, we devised assessments in four areas: prosocial behavior, antisocial behavior, shyness/dependency, and social acceptance/rejection. These constructs were chosen because they represent "central orientations" in personality and developmental assessment (Hartup & Van Lieshout, 1995), and their range permits us to examine the hypothesis that friendship concordances vary from attribute to attribute — a circumstance that is well-established for adolescents (Kandel, 1978b) but not for children.

Using these measures, we can also examine concordance variations in light of the "normative salience hypothesis," that is, the notion that similarities between friends vary according to the salience of an attribute in determining children's reference group membership or their social reputations (Hartup, 1996). Although specific attributes vary in normative salience from group to group and community to community, this hypothesis suggests that friends will generally be more similar than nonfriends in significant domains such as "starts fights" or "friendliness" than in insignificant ones such as "watches TV" or "likes hotdogs." Salience, in this sense, is evident whenever the child's behavior serves as a basis for social inclusion (e.g., friendliness or cooperativeness, especially among girls) or exclusion (e.g., aggression among girls and shyness/dependency among boys).

Empirical evidence relating to this hypothesis is scarce. Among adolescents, sexual behavior is more closely linked to social reputation among girls than among boys and, accordingly, female friends are more similar than nonfriends in this domain but not male friends (Billy, Rodgers, & Udry, 1984). In this investigation, we base two hypotheses on the normative salience hypothesis: (a) friends will be more similar than nonfriends among girls but not boys in antisocial behavior and noncompliance and (b)

friends will be more similar than nonfriends among boys but not girls in shyness/dependency. Social reputation among girls is more closely related to aggression and noncompliance than reputation among boys (Huston, 1983) whereas the social consequences of shyness/dependency are greater for boys (Caspi, Elder, & Bem, 1988; Maccoby, 1990).

Similarity between friends may be related to the children's social skills and competencies. Generally, one expects similarity in prosocial behavior to be greater among friends than nonfriends among well-accepted children, but not necessarily among less-accepted children; social reputations are more closely linked to these attributes among the former than the latter (Newcomb, Bukowski, & Pattee, 1993). On the other hand, social reputations among less-accepted boys (not girls) frequently depend on being aggressive, not victimized, and socially noncompliant. Friendship similarities may thus be related, in some instances, to both sociometric status and gender. Consequently, in this investigation, we examined friendship similarities in relation to both moderators.

Our measurement strategy enabled us to examine similarities in both *social behavior* (i.e., friends' and nonfriends' behaviors as rated by their classmates) and *interpersonal perceptions* (i.e., classmates' behaviors as rated by friends and nonfriends). Similarities between friends in interpersonal perception have not been studied, but their importance is considerable given the centrality of interpersonal perception in social interaction and relationships generally (Hinde, 1979). Reputational biases are known to be significant in peer relations during middle childhood, operating to sustain children's attitudes about one another across time and situation, to create expectancies about companions, and to determine the social interaction that actually occurs between children (Hymel, Wagner & Butler, 1990). Whether interpersonal perceptions are shared by friends to a greater extent than by nonfriends, however, is not known. "Guess Who" nominations (Thompson, 1960) were thus obtained in classrooms and used to examine the concordance issue from two perspectives: (a) nominations made by classmates of target children and their selected friends and nonfriends (measures of social behavior); and (b) nominations made by the targets, their friends, and nonfriends of these same classmates (measures of interpersonal perception).

The study design has two unique features: First, no more than one girl and one boy (plus a friend and a nonfriend in each case) were studied from any classroom. Since some children have more than one friend in their classrooms or may be involved in social networks or cliques, the independence of more than one friendship dyad within classrooms cannot be guaranteed. Moreover, when more than one dyad is recruited from each classroom, variations in network similarities that are known to exist from classroom to classroom (Cairns & Cairns, 1994) cannot be controlled. Second, selecting one friend dyad and one nonfriend dyad, each involving the same target child, enables us to examine similarity on a within-subjects basis, i.e., by comparing each target-and-friend dyad with the corresponding target-and-nonfriend

dyad rather than by comparing friend and nonfriend dyads on a between-subjects basis.

We assessed friend/nonfriend similarities in social behavior with both difference scores and correlation coefficients. Ordinarily, these similarities are examined with correlation coefficients, thereby establishing the proportion of shared variance in the scores of subjects and those of their friends and nonfriends, respectively. Shared variance, however, does not indicate the extent to which individuals obtain the same absolute scores on the assessment devices being used. In other research areas (e.g., behavior genetics), similarity is assessed both in terms of shared variance and absolute difference scores (Weinberg, Scarr, & Waldman, 1992). We assess similarities in this same manner, i.e., by comparing absolute differences between the scores of friends and nonfriends as well as correlation coefficients. Owing to measurement restrictions (see below), similarities between friends and nonfriends in interpersonal perception are assessed by means of the kappa statistic (Cohen, 1968).

METHOD

SUBJECTS
Target children were selected from among children who, in 1990—1991, were enrolled in 102 elementary school classes (Grades 4 through 8). Classes were located in 59 elementary schools serving lower- and middle-class families in the Nijmegen/Arnhem area of the Netherlands; eight schools (eleven classes) enrolled students receiving special education. Classes were targeted because at least one child participating in a longitudinal study was enrolled in each of them. Average class size was 25.4 pupils ($\underline{SD}$ 6.6). All students in these classes were assessed ($\underline{n}$ = 2,509) except for those students who were absent when testing was conducted ($\underline{n}$ = 82). School census records show that 89.5% of the children attending these schools in 1990—1991 were Dutch/Caucasian; ethnic minorities included children whose families originally lived in Surinam, the Netherlands Antilles, Indonesia, Turkey, and Morocco.

Target children were chosen as follows: One girl and one boy were randomly chosen from each class with the restriction that each child possess at least one same-sex mutual friend and one same-sex nonfriend, identified according to procedures described below. A small number of classes contained only one girl or one boy who met the inclusion criteria, and a few small classes contained no children who met them. Consequently, the resulting target children included 97 boys and 95 girls scattered across the 102 classes. Altogether, the subjects included 576 children [192 target children, one of each target child's friends ($\underline{n}$ = 192), and one of each target child's nonfriends ($\underline{n}$ = 192)]. The mean age of these children was 11 years and 1 month ($\underline{SD}$ 1 year and 3 months).

PROCEDURE

Participants, parents, teachers, and principals were given information about the investigation, including assurances of confidentiality in making and keeping research records. Consent was obtained from school authorities and from the children themselves. Group testing sessions, approximately one hour in length, were used to obtain sociometric and friendship nominations, "Guess Who" nominations, and self-ratings relating to depression. The examiners (graduate students) were strangers to the children. Children were furnished with a roster of their classmates to use as a reference in making their nominations, and were instructed to nominate "no more than three classmates" in the various categories and not to nominate themselves.

INSTRUMENTS AND MEASURES

Friendship nominations. The children were asked to list three classmates "who are your friends" ("Welke drie kinderen uit de klas zijn je vrienden?"). Cross-sex nominations were allowed although most nominations were same-sex. Children were considered to be mutual friends if they nominated one another on this item and to be nonfriends when neither nominated the other. Once the target girl and boy in each classroom were identified, one same-sex mutual friend and one same-sex nonfriend were randomly selected from those available (see above).

Guess Who nominations. Children were asked to write down the names of not more than three classmates best fitting nine behavioral descriptions in three clusters: (a) *Prosocial behavior:* "cooperates," "offers help," and "has friends".[1] (b) *Antisocial behavior:* "starts fights," "disrupts," and "bullies classmates." (c) *Shyness/dependency:* "is shy," "seeks help," and "is bullied" (is a victim). Each child's scores consisted of the number of nominations received from classmates on each item, transformed to within-class standard scores in order to correct for differences in class size. The reliability of these nominations is adequate and has been reported in many studies over the years (Thompson, 1960).

Social acceptance and rejection. The children were also asked to write down the names of not more than three classmates whom they "like most" and "like least," commonly used items in sociometric assessment (Coie & Dodge, 1983). The total number of "liked most" nominations received by a child was standardized within classes; the "liked least" scores were similarly standardized. For analyses requiring that children be grouped according to social acceptance, highly accepted children were regarded as those obtaining "liked most" standard scores equal to, or greater than, zero and less accepted children were those with standard scores below zero.

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[1] This item was the same item used to identify mutual friends, i.e., "who are your friends?" In this case, however, the total number of times each child was nominated by his or her classmates was assumed, as an aggregate score, to measure "has friends."

Depression questionnaires. A depression questionnaire consisting of an item subset (46 out of 107 items) was taken from the *Depression Questionnaire for Children* (De Wit, 1987). Two response categories (true/untrue) and four (out of ten) subscales were used: *Depressive mood* (5 items; "I often feel unhappy and sad nowadays"), *Decrease, delay, or regression of functions and behavior* (14 items; "Everything I do goes much slower than before"), *Negative self evaluations* (15 items; "When other children don't play with me, I think they don't like me"), and *Physical complaints* (12 items; "I often have a headache"). Summing responses to the items on these four subscales yields a *Depressive symptoms total score* (46 items; $\alpha = .90$).

Computation of within-dyad similarity

Social behavior. Similarity in social behavior and depression was defined, first, in terms of the absolute difference between the scores of target children and the scores of their friends and nonfriends, respectively. Difference scores were calculated separately within each dyad for each measure by subtracting the score of the friend or the nonfriend from the score of the target child and removing the sign. Small difference scores thus indicate high similarity, while large ones indicate low similarity. Second, behavioral similarity was measured by Pearson product-moment correlation coefficients computed separately for each construct across the friend and non-friend dyads, respectively. Within-dyad similarities are assumed to vary directly with the magnitude of these coefficients.

Interpersonal perception. Similarity in interpersonal perception was defined in terms of the unweighted kappa coefficient calculated within dyads (Cohen, 1968). Agreements between children (e.g., target child and friend) were defined as instances in which both children nominated or did not nominate the same individual classmate on a given "Guess Who" item. Disagreements consisted of instances in which one child (e.g., the target child) nominated a classmate and the other (e.g., the friend) did not.[1] Kappa coefficients were computed separately within each dyad for each measure, a strategy that differs from those used by other investigators (e.g., Kandel, 1978b) in which agreements between targets and friends (or targets and nonfriends) are compared once and kappa then calculated across dyads.

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[1]   Kappa coefficients were not calculated on any given item for dyads containing children who nominated no classmates on that item. In these cases, omissions are indistinguishable from non-nominations. Reduced sample sizes are shown in Table 3.

RESULTS

PRELIMINARY ANALYSES

Before examining the concordances between friends and nonfriends, intercorrelations were calculated for the entire sample ($\underline{N}$ = 576) among the raw scores on the nine "Guess Who" measures, the two sociometric measures, and the depression score. Correlations greater than .08 were significant beyond the .05 level, greater than .10 at the .01 level. Results show that correlations within construct clusters varied in magnitude: Among the prosocial measures, $\underline{r}$ ranged between .55 and .58; among the antisocial measures between .72 and .86; among the shyness/dependency measures between .11 and 28; between like most and like least scores, $\underline{r}$ = -.35. Correlations between construct clusters were weak and almost entirely negative with coefficients ranging between .01 and -.34. Being "liked most" was substantially correlated with prosocial behavior ($\underline{r}$ ranging between .55 and .78) but weakly correlated with antisocial behavior (-.05 to -.12) and shyness/dependency (-.10 to -.31). Being "liked least" was most strongly correlated with antisocial behavior (.46 to .56) although also related to prosocial behavior (-.28 to -.35) and shyness/dependency (.03 to 47). Depression was weakly related to shyness/dependency (.07 to .14) and prosocial behavior (-.08 to -.15) as well as being liked most (-.13) but not to antisocial behavior or being liked least. Compositing within construct clusters was therefore warranted for some scores, especially antisocial behavior, but not for others. Given this variability and our desire for consistency in presentation, subsequent analyses were conducted separately for each measure. Analyses of variance (2 x 2 x 3) were used to examine differences in raw scores associated with gender, sociometric status, and subject category (the target children versus their friends versus their nonfriends). These analyses were conducted for two reasons: (a) to demonstrate that children in these three samples are comparable with children assessed in other behavioral studies, and (b) to demonstrate that the three subject groups are similar to one another. Results are summarized below rather than presented in detail (all differences mentioned are associated with probabilities beyond the .05 level).

Gender: Boys obtained significantly higher antisocial scores than girls; their prosocial and shyness scores were significantly lower. Boys also reported fewer depressive symptoms than girls. *Social acceptance:* High accepted children obtained higher prosocial scores than less accepted children; less well-accepted children, on the other hand, obtained higher antisocial and shyness scores as well as higher victimization scores and reported more depressive symptoms. *Targets versus others:* Targets, friends, and nonfriends did not differ significantly from one another on most of the dependent variables. The targets and the friends group scored higher than the nonfriends group on the has friends scale, a difference that almost certainly is a design effect since children were selected as targets, friends, or

TABLE 5.1

Subjects as Rated by Classmates: Mean Difference Scores (and Standard Deviations) for Children and Their Friends and Their Nonfriends, Separately by Gender and Sociometric Status

| Measure | Friend dyads | | Nonfriend dyads | | Analysis of Variance Effects | | |
	Girls ($n = 95$)	Boys ($n = 97$)	Girls ($n = 95$)	Boys ($n = 97$)	Friendship $F(1, 188)$	Gender $F(1, 188)$	Status $F(1, 188)$
A. Prosocial behavior							
Cooperates					11.49**	9.19**	14.06***
high accepted	1.31 (.89)	.85 (.83)	1.53 (1.08)	1.18 (.93)			
less accepted	.81 (.63)	.67 (.83)	1.08 (.86)	.77 (.64)			
Offers help					8.10**	-	5.70*
high accepted	1.02 (.81)	.93 (.78)	1.31 (.84)	1.20 (.92)			
less accepted	.75 (.62)	.92 (.80)	1.04 (.86)	.89 (.73)			
Has friends					12.28**	-	10.09**
high accepted	.97 (.84)	.88 (.72)	1.50 (1.03)	1.48 (.84)	F x S: $F(1, 188) = 16.91$***a		
less accepted	.85 (.82)	1.02 (.74)	.87 (.74)	.91 (.73)			
B. Antisocial behavior							
Starts fights	.28 (.43)	.76 (.95)	.43 (.75)	1.09 (1.14)	9.73**	34.14***	-
Disrupts	.37 (.57)	.86 (1.02)	.50 (.80)	1.15 (1.18)	7.22**	26.45***	-
Bullies classmates	.24 (.44)	.80 (1.06)	.33 (.64)	1.07 (1.14)	6.14*	38.68***	-

(table continues)

TABLE 5.1 *(continued)*

Measure	Friend dyads		Nonfriend dyads		Analysis of Variance Effects		
	Girls (n = 95)	Boys (n = 97)	Girls (n = 95)	Boys (n = 97)	Friendship $F_{(1,188)}$	Gender $F_{(1,188)}$	Status $F_{(1,188)}$
C. Shyness / dependency							
Is shy	.99 (1.23)	.41 (.59)	1.12 (1.33)	.62 (.78)	8.10***	-	-
Seeks help							
high accepted	.83 (.88)	1.02 (1.05)	1.24 (1.16)	.82 (1.02)	F x G x S: $F_{(1,188)}$ = 6.14*[b]	-	-
less accepted	1.05 (.94)	.66 (.67)	1.10 (1.14)	1.02 (1.02)			
Is a victim					5.19*	-	-
high accepted	.41 (.55)	.46 (.82)	.94 (1.20)	.76 (1.14)	F x S: $F_{(1,188)}$ = 4.82*[a]		
less accepted	.77 (.98)	.76 (1.09)	.74 (.83)	.81 (1.10)			
D. Liked Most / Liked Least							
Liked Most					-	-	-
high accepted	.97 (.87)	1.08 (.84)	1.35 (.95)	1.35 (.95)	F x S: $F_{(1,188)}$ = 7.77**[a]		
less accepted	.99 (.79)	1.15 (.95)	.95 (.82)	1.00 (.79)			
Liked Least	.51 (.60)	.82 (.97)	.68 (.77)	.97 (1.05)	9.43**	-	-

Note. Low scores indicate high similarity. [a]: Friend dyads differed significantly (p < .05) from nonfriend dyads among high accepted children only. [b]: Friend dyads differed significantly (p < .05) from nonfriend dyads among less accepted boys only. * p < .05, ** p < .01, *** p < .001.

nonfriends according to the same nominations ("we are friends") that were aggregated to construct this scale. The only other significant subject difference showed that the targets and the friends were less victimized than the targets' nonfriends.

These results demonstrate, first, that the children being studied were similar to those examined elsewhere in the social development literature: Sex differences and sociometric status differences are identical to those reported in many other studies (Huston, 1983; Parker & Asher, 1987; Newcomb, Bukowski, & Pattee, 1994). Second, no important differences emerged between targets, friends, and nonfriends except that the nonfriends were reported to be more victimized than the other groups. One guesses that socially better-adjusted children might be overrepresented among the targets and their friends as compared with the nonfriends. That is, some of the latter children may not have had friends, and friendless children are known to be less well-adjusted than friended ones (Rutter & Garmezy, 1983). More important, though, the analyses show that the three subject groups did *not* differ with respect to the main construct clusters used to examine friend/nonfriend concordances.

Similarity between friends and nonfriends as rated by their classmates

Difference scores. Absolute difference scores (similarities) were calculated and intercorrelated separately for friends and nonfriends. The two sets of intercorrelations were nearly identical. Within construct clusters, these correlations ranged between .25 and .36 for prosocial behavior, .63 and .79 for antisocial behavior, .00 and .21 for shyness/dependency, and between .07 and .15 for liked most/liked least. (Correlations greater than .14 were significant at the .05 level, greater than .19 at the .01 level). Difference scores were not correlated significantly across clusters except that similarity in being liked was positively correlated with similarities in cooperation, offering help, and having friends whereas similarity in being disliked was positively correlated with similarities in starts fights, disrupts, bullies classmates, and being victimized. Depression difference scores were not correlated with any of the others. Once again, moderate coherence is demonstrated within and across some of the construct clusters although separate presentation of results for each measure is believed to depict most clearly the friendship similarities existing within the data set.

Similarities between the target children and their friends were then compared with similarities between the targets and nonfriends in a series of mixed-design 2 x 2 x 2 analyses of variance in which friendship status (target-and-friend dyad, target-and-nonfriend dyad) was the within-subjects condition while gender (males, females) and social acceptance (high, low) were between-subjects conditions. Dependent variables consisted of the absolute difference scores on each scale within the four main construct clusters. Results are shown in Table 5.1, including the outcomes from the ANOVAs and the simple effects tests that were used to compare subgroups when interaction effects were significant.

1. Friendship status. The main effect of friendship status was significant in nine of the eleven analyses, in all cases indicating that the difference scores of friends were smaller than the difference scores of nonfriends. In two cases (has friends, is a victim),

this main effect was qualified by a significant interaction with sociometric status indicating that friends were more similar to one another than nonfriends among high accepted but not among less accepted children. In one other case (liked most), this same interaction effect was obtained even though the main effect of the friendship condition was not significant. And, in the one remaining analysis (seeks help), the three-way interaction effect was significant with friends being more similar than nonfriends among less accepted boys and high accepted girls but not in the other two groups. Overwhelmingly, then, friends were more similar in their behavior than nonfriends. For having friends, being liked, and being a victim, this holds true only among socially accepted children. No significant interaction effects qualified the friendship main effect on any of the antisocial scales.

    2. *Gender.* Main effects of gender were significant in four instances: cooperation, starts fights, disruption, and bullying. Boys were more similar to one another than girls in cooperation; girls were more similar to one another than boys on the three measures of antisocial behavior. As mentioned, gender interacted significantly with friendship and social acceptance in seeking help.

    3. *Social acceptance.* Main effects of social acceptance were significant in three instances: Low accepted children were significantly more alike in cooperation, offering help, and having friends than high status children. As mentioned, this variable was also involved in four significant interaction effects.

    Correlations. Correlations assessing behavioral similarities between the targets and their friends and nonfriends, respectively, are given, separately for boys and girls, in Table 5.2. The table shows, first, that the correlations between friends' scores (sexes combined) are substantially more positive than between nonfriends' scores across the data set. Differences were tested by comparing correlated correlation coefficients (Meng, Rosenthal, & Rubin, 1992) and were significant in all cases except liked least. These differences mirror the friendship effects emerging from the ANOVAs owing to the mathematical dependencies existing between the two analytic methods.

    Second, variations from attribute to attribute are evident in the magnitude of these coefficients. Friendship similarities are greater among the three antisocial measures than among the prosocial, shyness/dependency, and sociometric measures. Note that the differences associated with having friends and being liked most reflect significant negative correlations between nonfriends rather than significant positive correlations between friends (see Table 5.2). These negative correlations derive to some extent from the common origins of the measures being correlated and the measure designating a child as a target, friend, or nonfriend (i.e., the test item asking the children to nominate three friends).

TABLE 5.2

Subjects as Rated by Classmates: Correlations Between Scores of Children and Scores of Their Friends and Their Nonfriends, Separately by Gender

	Friend dyads			Nonfriend dyads		
	Girls	Boys	All	Girls	Boys	All
Measure	n=95	n=97	n = 192	n=95	n=97	n = 192
A. Prosocial behavior						
Cooperates	.18	.10	.17*	-.22*	-.10	-.15*
Offers help	.31**	.20	.26***	-.15	-.07	-.10
Has friends	.15	.11	.13	-.15	-.23*	-.18*
B. Antisocial behavior						
Starts fights	.42***	.28**	.36***	-.11	-.08	.01
Disrupts	.26*	.24*	.31***	-.05	-.08	.03
Bullies classmates	.36***	.36***	.43***	-.05	-.02	.10
C. Shyness/dependency						
Is shy	.13	.41*	.24**	-.06	.09	-.00
Seeks help	.20	.18	.19**	-.13	-.14	-.13
Is a victim	.10	.19	.14*	-.19	-.11	-.14
D. Liked Most/Liked Least						
Liked Most	.06	-.01	.02	-.24*	-.23*	-.23**
Liked Least	.06	.20*	.20**	-.07	.01	.02

Note. *p < .05, **p < .01, ***p < .001.

Third, gender differences occur in five instances: (a) Among girls, but not among boys, friends were significantly more similar than nonfriends in cooperates, offers help, and liked most. None of the correlations for female friends, however, significantly exceeded those for male friends, according to statistical tests for comparing non-correlated correlations (Ferguson, 1981). (b) Among boys, but not girls, friends were significantly more similar than nonfriends in shyness and victimization. For shyness, the correlation for male friends (r = .41) significantly exceeded that for female friends (r = .13).

Similarity between friends and nonfriends in self-reported depression

Similarity in depression difference scores was examined in a three-factor ANOVA in which dyad (friend, nonfriend) was a within-subjects condition while gender and social acceptance were between-subjects conditions. The dyad main effect was significant, F(1, 145) = 5.81, p <.05 with friends being more similar in self-reported depressive symptoms than nonfriends (M = 6.71, SD = 6.16 and M = 8.38, SD = 6.84, respectively). The gender by acceptance interaction effect was also significant but not relevant to the issues examined in this investigation.

Among both boys and girls, depression raw scores were more highly correlated between friends (r = .30 and .20, respectively) than between nonfriends (r = .04 and .07, respectively) but these differences were not significant.

Similarity between friends' and nonfriends' ratings of their classmates

Similarities in friends' and nonfriends' nominations of their classmates were compared in three-way ANOVAs similar to those used with their classmates' nominations of *them*. Dependent variables in these analyses were within-dyad kappa coefficients rather than difference scores (see Table 5.3).

1. Friendship status. The main effect of friendship status was significant for nine of the eleven variables (excluding only disruption and seeking help). Concordance coefficients were significantly higher among the children with their friends than with their nonfriends. Significant three-way interaction effects occurred in five instances: offering help, fighting, seeking help, shyness, and being disliked. Simple effects comparisons were the same in every instance: Concordances were significantly greater for friends than for nonfriends among high accepted boys and low accepted girls only.

2. Gender. Gender main effects were significant for only one scale (offering help) but this was qualified by the three-way interaction mentioned above. As mentioned, gender was also involved in four other significant three-way interactions.

3. Social acceptance. A significant main effect for social acceptance was obtained for only one variable — has friends. High accepted children were more concordant than low accepted children in this case. Once again, one must remember that sociometric status was involved in five significant three-way interactions.

TABLE 5.3

Classmates as Rated by Subjects: Mean Cohen's Kappa's (and Standard Deviations) for Children and Their Friends and Their Nonfriends, Separately by Gender and Sociometric Status

	Friend dyads		Nonfriend dyads		Analysis of Variance Effects		
					Friendship	Gender	Status
	Girls	Boys	Girls	Boys	F	F	F
Measure	(n = 16-86)	(n = 14-87)	(n = 16-86)	(n = 14-87)	(1, 26-169)	(1, 26-169)	(1, 26-169)
A. Prosocial behavior							
Cooperates	.28 (.37)	.25 (.33)	.17 (.30)	.08 (.24)	11.02**	-	-
Offers help					13.57***	4.09*	-
high-accepted	.26 (.36)	.27 (.33)	.21 (.29)	-.01 (.20)	F x G x S: F(1, 125) = 15.91***a		
less accepted	.40 (.40)	.13 (.33)	.06 (.24)	.21 (.34)			
Has friends					86.34***	-	4.72*
high accepted	.51 (.39)	.51 (.43)	.15 (.27)	.04 (.30)			
less accepted	.40 (.42)	.36 (.36)	.05 (.30)	.09 (.27)			
B. Antisocial behavior							
Starts fights					5.18*	-	-
high accepted	.24 (.36)	.25 (.33)	.16 (.27)	.03 (.21)	F x G x S: F(1, 110) = 10.08**b		
less accepted	.33 (.37)	.25 (.34)	.19 (.34)	.15 (.26)			
Disrupts	.20 (.33)	.39 (.40)	.34 (.32)	.32 (.32)	-	-	-
Bullies classmates	.39 (.38)	.46 (.30)	.27 (.34)	.36 (.35)	5.84*	-	-

(table continues)

TABLE 5.3 (continued)

Measure	Friend dyads Girls (n = 16-86)	Friend dyads Boys (n = 14-87)	Nonfriend dyads Girls (n = 16-86)	Nonfriend dyads Boys (n = 14-87)	Analysis of Variance Effects Friendship F (1, 26-169)	Gender F (1, 26-169)	Status F (1, 26-169)
C. Shyness/dependency							
Is shy					4.75*	-	-
high accepted	.23 (.34)	.33 (.36)	.25 (.37)	.19 (.37)	F x G x S: F (1, 67) = 4.86*c		
less accepted	.34 (.35)	.30 (.40)	.12 (.27)	.27 (.30)			
Seeks help					-	-	-
high accepted	.11 (.33)	.36 (.34)	.04 (.23)	.07 (.32)	F x G x S: F (1, 26) = 5.86*c		
less accepted	.39 (.44)	.01 (.16)	-.05 (.14)	.16 (.50)			
Is a victim					5.55*	-	-
high accepted	.38 (.38)	.42 (.33)	.24 (.35)	.35 (.37)	G x S: F (1, 109) = 4.72*d		
less accepted	.55 (.32)	.35 (.42)	.43 (.27)	.30 (.36)			
D. Liked Most / Liked Least							
Liked Most	.46 (.38)	.39 (.40)	.16 (.30)	.11 (.28)	56.16***	-	-
Liked Least					11.34**	-	-
high accepted	.32 (.28)	.39 (.30)	.24 (.29)	.14 (.32)	F x G x S: F (1, 118) = 5.61*a		
less accepted	.39 (.34)	.21 (.32)	.20 (.34)	.21 (.34)			

Note. Low scores indicate low similarity. Friend dyads differed significantly (p < .05) from nonfriend dyads: a: among less accepted girls and high accepted boys only, b: among high accepted boys only, c: among less accepted girls only. d: No significant differences between subgroups were found in post hoc Scheffé multiple comparison tests. * p < .05, ** p < .01, *** p < .001.

DISCUSSION

BEHAVIORAL SIMILARITIES AMONG FRIENDS

Similarities between friends extend across a wide range that includes prosocial and antisocial behavior as well as shyness, victimization, and depressive symptoms. Sociometric status also turns out to be generally more similar between friends than between nonfriends, a result that is more consistent with recent than with earlier investigations [e.g., Kupersmidt et al. (1995) and Roff, Sells, & Golden (1972), respectively]. Friends are not carbon copies of one another (as indicated by the modest effect sizes), but similarities between children and their friends are evident in both absolute difference scores and rankings within classrooms.

These conditions suggest that friends "merge" themselves behaviorally over a wide range of attributes, forming a series of so-called "dyadic traits." Previous investigators have described friendship mergers involving antisocial behavior (Dishion et al., 1994). Our results suggest that these mergers also occur in other domains including both attributes that can be regarded as "protective factors" (e.g., prosocial behavior) and other attributes indicating risk for psychopathology, (e.g., antisocial behavior and depressive symptoms).

The extensiveness of these similarities obviously varies from dyad to dyad across the behavioral range. Some friends may be similar across a great many attributes, others may be similar in one or two, others still mostly dissimilar. Dyadic similarity, in other words, is a relationship dimension in its own right (Hinde, 1979). Additive methods can be used to measure it (see Kupersmidt et al., 1995) or multivariate methods can be used in which the sum of a set of squared Euclidean distance measures computed over a series of orthogonalized measures (e.g., factor scores) operationalizes dyadic similarity. Having friends who are similar to oneself across many different attributes may predict different developmental outcomes from having friends who are similar in only one or two. Consequences may differ, too, for different children, e.g., for children who are socially vulnerable rather than socially invulnerable. Nothing is currently known about either of these issues.

Since behavioral similarities between friends are so extensive, friendships may also be described in terms of "dyadic profiles." For example, prosocial and antisocial behavior (both raw scores for individual children and difference scores within dyads) were significantly and negatively correlated in our data set. Prosocial behavior and shyness/depression were also negatively correlated. These intercorrelations do not demonstrate, in themselves, the existence of distinctive similarity profiles among children and their friends. Certain dyads, nevertheless, may display them. Previous

investigators (Patterson, Reid, & Dishion, 1992) have shown that similarities between antisocial friends include similarities in social skills (usually poor). Should other "profiles" or "patterns" characterize certain children and their friends, one can then argue that a "dyad-oriented" approach to friendship assessment makes more sense than a "variable-oriented" one, in the same way that "person-oriented" approaches in personality assessment are believed by many investigators to be a necessary complement to "variable-oriented" ones (Stern, 1911).

We believe that behavioral similarities between children and their friends — whether as dyadic traits or dyadic profiles — have considerable developmental significance. Current evidence, for example, suggests that antisocial children move further into antisocial careers as a consequence of their relationships with antisocial friends (Dishion et al., 1994). Friendship concordances in this domain thus constitute "risks" in social development. Likewise, well-socialized children and their friends influence one another in socially desirable directions (Ball, 1981; Mulvey & Aber, 1988). But whether friendship similarities in shyness, victimization, and depression constitute developmental risk or developmental protection is not known. Shy children and their friends may or may not mutually socialize themselves toward increased shyness (this remains to be seen). In any case, social interaction between shy children and their friends may not be maladaptive. Shy or depressed children may actually achieve a good adjustment through the social interaction that friends have with one another even though the children themselves are socially reticent or sad. Shy friends may not alleviate one another's shyness so much as the loneliness that accompanies and exacerbates the risk associated with it (Asher, Parkhurst, Hymel, & Williams, 1990).

SIMILARITIES AMONG FRIENDS IN INTERPERSONAL PERCEPTION

Friendship similarities include the manner in which children perceive their classmates as well as the manner in which their classmates perceive them. Friends were more concordant than nonfriends in identifying their classmates as antisocial or rejected, shy or victimized, and cooperative, nurturant, or socially accepted. The significance of these similarities (not hitherto demonstrated) can hardly be overstated, given that children's perceptions of one another have an important bearing on both social relations and self-attitudes (Hymel et al., 1990).

On origins: Previous studies (e.g., Erwin, 1985) show that friends use more similar systems of interpersonal constructs than nonfriends. Our results are consistent with these findings. Consider that friends can concordantly nominate classmates as "starting fights" or "cooperative" only if the two children construe the relevant constructs similarly. But conditions other than similar construct use undoubtedly contribute to similarities between friends in the way they rate their classmates. Friends, for example, spend substantial amounts of time together in middle childhood (Medrich, Rosen, Rubin, & Buckley, 1982) and, as a consequence, their daily experien-

ces with their classmates are undoubtedly more similar to one another than those of children who are not friends.

ATTRIBUTE-TO-ATTRIBUTE VARIATIONS

The correlational results (Table 5.2) show that behavioral similarities between friends vary in magnitude from attribute to attribute. Shared variance is more substantial among the three antisocial measures for both sexes than among the prosocial measures, shyness and victimization, or sociometric status. Behavioral concordances between children and their friends thus resemble concordances obtained earlier with adolescents, that is, attribute-to-attribute variations are endemic (Kandel, 1978b).

The relatively robust correlations obtained between friends in the antisocial domain are consistent with the normative salience hypothesis. Children are known to dislike one another more often because they are aggressive than for any other reason, including shyness and social withdrawal (Moore, 1967; Parker & Asher, 1987). Since the salience of antisocial behavior in children's social relations is well-established, we believe our results are consistent with the notion that friendship similarities are more likely to be evident among normatively salient attributes than among others.

GENDER AS A MODERATOR OF FRIENDSHIP SIMILARITY

Difference scores. The difference scores revealed numerous main effects of gender — cooperation, starts fights, disruption and bullying, shyness, victimization, and being disliked. These differences are not relevant to our objectives and are probably not always meaningful since most rest on gender differences in the raw scores — differences that are already well known. Gender was involved in only one significant interaction effect (in seeking help) — a three-way interaction with friendship and sociometric status that is not readily interpretable and may be unstable. The general absence of interaction effects involving gender in the difference scores is not consistent with our expectations based on the normative salience hypothesis.

Correlations. Among girls, correlations for friends exceeded those for nonfriends in cooperation, offering help, and being liked; among boys, they did not. The friend/nonfriend differences among girls, however, were generated in each instance by substantial negative correlations among nonfriends rather than substantial positive ones among friends and, indeed, the correlations for male and female friends did not differ significantly on any of these measures. One cannot argue that friendship similarities differed according to gender in these cases even though the gender differences between friends and nonfriends are consistent with expectations based on the normative salience hypothesis.

Among boys, one result suggests a gender difference: the correlation between male friends in shyness (r = .41) was significantly greater than the correlation between nonfriends (r = .09) as well as being significantly greater than the correlation for female friends (r = .13). Since shyness is known to damage boys' social reputations to a greater extent than girls' reputations (Caspi, Elder, & Bem, 1988), this result confirms expectations we entertained on the basis of the normative salience hypothesis.

SOCIAL ACCEPTANCE AS A MODERATOR OF FRIENDSHIP SIMILARITY

Similarity in ratings of our subjects in having friends and being liked most varied as an interaction between friendship and social acceptance, results that may be design effects since friend nominations were used for both the independent and dependent measures. This same interaction effect, however, was also obtained using difference scores for victimization, a measure that is only weakly and negatively correlated with being liked. The singularity of this interaction effect suggests that it may be unstable.

In addition, in our subjects' ratings of their classmates, similarity was greater for friends than nonfriends among high accepted boys and low accepted girls, but not among low accepted boys and high accepted girls. This interaction effect was more-or-less uniform across the entire data set (prosocial and antisocial behavior, shyness/dependency, and sociometric status), making it difficult to dismiss. Nevertheless, clear-cut interpretations of this interaction effect are difficult to formulate since neither theoretical nor empirical bases exist to account for it.

DIFFERENCE SCORES COMPARED TO CORRELATIONAL ASSESSMENT OF SIMILARITY

Difference scores were unusually sensitive measures of friendship similarity and, in this instance, do not have some of the disadvantages experienced when these scores are used to measure change (e.g., regression effects that necessitate the use of residualized scores). Difference scores and correlation coefficients are not independent mathematically, but the meaning of similarity is rooted in both metrics: (a) One individual is similar to another when the two obtain the same scores on a certain measure or measures, i.e., the mean difference between their scores is zero; and (b) individuals are similar to one another when they obtain similar rankings in relation to other individuals on the same measure. Describing similarity using both methods involves certain redundancies but also clarifies certain issues.

CONCLUSION

Children and their friends are more similar to one another than nonfriends as rated by their classmates and, in turn, as their classmates are rated by them. Greater similarity occurs in antisocial behavior than in other social behavioral domains, although the behavioral range among these concordances is impressive. Certain results also suggest that friendship similarities vary as a function of normative salience, although this hypothesis requires more direct testing.

Studies are now needed that establish whether friendship similarities in certain areas (e.g., shyness) are as significant developmentally as similarities in others (e.g., antisocial behavior) and whether aggregate measures or profile analysis improve developmental prediction. Given the extensiveness of the similarities known to exist between children and their friends, investigators can now concentrate on specifying their antecedents as well as their concurrent significance and developmental implications.

BULLYING AND VICTIMIZATION IN MIDDLE CHILDHOOD AT THE INDIVIDUAL, RELATIONSHIP, AND GROUP LEVEL

Theories about bullying and victimization in middle childhood have often focussed on individual differences between children involved in bullying and victimization (cf. Olweus, 1991). In some studies, intra-group processes (e.g. Salmivalli, Lagerspetz, Björkvist, Österman & Kaukiainen, 1996) and inter-group differences (e.g. Whitney, Rivers, Smith, & Sharp, 1994) related to bullying and victimization have gained serious attention. A relative unexplored territory is the relationship between bullies and their victims. In this study we empirically explored this relationship type. Additionally, we compared relationship characteristics of bullies and victims with individual and group related characteristics.

Pierce and Cohen (1995) have proposed "to examine aggressors and victims as interdependent participants in a social relationship (...) within the social context of children's peer relations" (p. 292). Inspired and guided by their approach, we hypothesized that childhood bullying and victimization is simultaneously influenced or determined by three different sources, or "levels": The *individual level,* the *relationship level*, and the *group level*. Below we refer to this distinction in three levels as the "three-level model". The word "level" was used because these three sources of influence refer to three aspects of children's social world that differ in their degree of complexity. (cf. Rubin, Bukowski, & Parker, 1996). Furthermore, the three levels are at least partly arranged hierarchically: Relationships and groups may be regarded as combinations of individuals, groups may also be regarded as combinations of relationships.

THE ORIGIN OF BULLY-VICTIM RELATIONSHIPS

When a new social group is formed, for example, a school class, children usually are unacquainted with each other and have no relationships with each other. Initially, they will be involved in all kinds of occasional and rather random interactions with other group members, for example, their new classmates. Children perceive and evaluate these interactions, and will remember those encounters that are the most

salient to them. These perceptions, evaluations, and memories determine the expectations that children will have about themselves and about each other, and therefore their behavior in future interactions. Crick and Dodge (1994) describe a general model in which the processing of this kind of social information is described. For example, Dodge and Coie (1987) examined social information processing factors related to aggression in children's peer groups and found support for their hypothesis "that attributional biases and deficits are related to reactive aggression but not to proactive aggression. (p. 1146).

Children also experience and expect all kinds of feelings during these interactions, like joy, pleasure, anxiety, fear or pain. These emotions may also contribute to the organisation of future interactions (see Thomson, 1993, for a review). If such social cognitions and emotions systematically influence the behavior of the members of a dyad towards each other, then we might say these two children have a relationship. The process in which a relationship emerges through interactions might be described as "a social process by which individuals dynamically alter their actions with respect to the ongoing and anticipated actions of their partners" (Fogel, 1993, p. 34). This process is labelled by Fogel as "coregulation". For example, when children become friends, their communication tends to become increasingly connected (Gottman, 1983).

If there are systematic individual differences between two children that are involved in a series of interactions, then the outcomes of these interactions may also systematically differ for both children. These children may have different evaluations of these interactions, and their expectations about future interactions may differ. If a child has negative experiences about interactions with another child that behaved aggressively, then the child may expect this to happen again, and tend to avoid interactions with this aggressor. If at the same time the aggressor enjoyed these past interactions and tends to look for this kind of interactions, then a bully-victim relationship may have started to emerge. These children are about to become interdependent participants in a social relationship (cf. Pierce and Cohen, 1995). The two members of this aversive relationship have participated in the same interactions in the past. But they may differ in their perceptions, evaluations, memories, and emotions regarding these interactions. The two members will have partly the same expectations about future interactions ("if we meet each other, then there will probably be a struggle"), but also some complementary or even opposite behavioral expectations ("I will be teased or beaten by him" versus "I will tease or beat him"), some complementary or even opposite emotional expectations ("I will be afraid" versus "I will have fun"), and some complementary or even opposite behavioral tendencies ("I will avoid him" versus "I will look for him").

Differences between children in a dyad may be divided in two categories. The first category of differences are measurable or observable characteristics such as physical characteristics, behavioral orientations, or personality traits. Children may be compared and (rank-)ordered on these characteristics. This category of differences refers to the individual level in our model. These differences, and especially aggression

related differences, are the starting point of the emergence of a bully-victim relationship. Additionally, these differences contribute to the preservation of such relationships. Two children may for example differ from each other in their physical power, in their verbal capacity to argue and quarrel, in their social cognitive skills, in their tendency to use violence to solve conflicts, or in their goal orientation.

The second category of dyadic differences refers to unique characteristics of specific relationships, such as different memories about specific past interactions and different expectations and behavioral tendencies about future interactions, that two children may have about their relationship. This category of differences also influences the way interactions take place and develop. They are highly unique for specific relationships, and therefore often meaningless outside the context of that relationship. This category of differences refers to the relationship level in our model. Children can not easily be compared with each other on this category of differences, they are difficult to assess systematically.

Sets of characteristics from both categories may be labelled as roles or positions within a relationship. They emerge during the development of a bully-victim-relationship, and refer to information that is created during a coregulation process (Fogel, 1993, chap. 6).

THE SOCIAL CONTEXT OF BULLYING: THE GROUP LEVEL

Differences between participants in relationships might be regarded as necessary though insufficient conditions for the emergence and preservation of bullying and victimization. Numerous conditions and mechanisms in the social context might influence these processes. The social context incorporates all external social sources of influence for individuals and their relationships. It provides the opportunities and constraints that facilitate specific behaviors and interactions, and inhibits others.

Social context consists of persons, usually arranged in groups such as the family, the school, or youth in general. In this study we did not include family influences, although relationships between family characteristics, including child rearing styles, and bullying and victimization have been reported (Bowers, Smith & Binney, 1994; Olweus, 1993b; Schwartz, 1993). We also did not include influences of youth culture in this study, despite its relation to bullying and victimization (cf. Sharp & Smith, 1991). Janssen (1995) summarizes that "youth cultures, especially boys cultures, not seldom display aggressive and amoral behaviors and attitudes" (p. 42-43, translation by G. H.), and criticizes the bullying research that rarely relates to these findings. Some groups might play a crucial role in this facilitation and inhibition processes of bullying and victimization. We regard the school class as the core social context of children's peer relationships. Therefore, we used the school class as operationalization for social context in this study. This operationalization might be too broad, children tend to maintain peer relationships within specific subgroups in class. The most obvious is the

gender segregation that almost always exists in school classes: Children tend to engage mostly in same sex peer relationships (Hartup, 1983; Maccoby, 1988). Furthermore, most of the time spent with peers, children are together in more or less stable small groups, or cliques (Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988). On the other hand the operationalization of the school class as the social context of children's peer relationships might be too narrow: Children may maintain their most important relationships with children outside their class, for example, with siblings, or with children in their neighbourhood or at clubs. Despite these limitations we use the school class as the best available approximation of the most salient social context of children's peer relationships. Below we will use the term "group level" to refer to this operationalization of social context.

Some characteristics at the group level appear to be of minor importance for bullying and victimization phenomena. For example, Olweus (1991) concluded that "the size of the class or school appears to be of negligible importance for the relative frequency or level of bully/victim problems in the class or the school " (p. 422). Other characteristics at the group level may be very important. For example, Olweus (1993a) suggested "that the attitudes of the teachers towards bully/victim problems, and their behavior in bullying situations are of major significance for the extent of bully/victim problems in the school or in the class" (p. 26).

The school class provides possibilities for children to meet each other, and to have all kinds of influences on each other. Therefore, the school class may provide resources that facilitate the development and preservation of bully-victim relationships. The bully may receive assistance in bullying from classmates. The victim may systematically be withheld from support in his attempts to resist against bullying. Thus, a bully-victim relationship may preserve, because the bully is supported in his aggression by classmates, while the victim does not receive support from classmates in his defence against the aggression. The aggression supporting classmates may be friends of the bully (cf. Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988), or themselves have a bully-victim relationships with the victim. The classmates that let the victim down may themselves be victims in a bully-victim relationship with the bully, or fear to become one. In other words, a bully-victim relationship is part of a network of social relationships within a group. This network of social relationships is reflected in the reputations of classmates.

Taken together, bully-victim relationships may emerge if there are individual differences in aggression within a group that allows and stimulates social interactions leading to the emergence of relationship differences on aggression. Relationships are the crucial element in this approach: Individual differences and group characteristics are reflected in their nature.

BULLYING INVOLVEMENT TYPOLOGIES

Four main types of children involved in bullying are often distinguished in bullying related research (Bowers, Smith & Binney, 1994; Olweus, 1981; Perry, Perry, & Kennedy, 1992). These typologies are based on the idea that aggression and victimization are two orthogonal dimensions of behavior (Olweus, 1978; Perry, Kusel, & Perry, 1988). When children are categorized on both dimensions as either high or low, the following four types may be distinguished: a) *Victims* are low on aggression and high on victimization; b) *Bullies* are low on victimization and high on aggression; c) *Bully/victims* are high on both dimensions of aggression and victimization; d) *Noninvolved* children are both low on aggression and victimization. How is this general typology related to the three levels of our model?

THE INDIVIDUAL LEVEL

The general typology described above fits very well on the individual level, if differences are ignored in the manner and degree children bully or are victimized. On this level the typology might refer to differences in individual behavioral styles: person characteristics of children, that are rather stable over time and situations.

THE RELATIONSHIP LEVEL

The general typology described above may also be applied to the relationship level. On this level the typology refers to stable differences in roles or positions within a relationship. In this study we concentrate on dyadic relationships, in which two persons, and thereby two positions, are involved. We may then distinguish between the bully position or role, the victim position or role, the bully/victim position or role, and the noninvolved position or role. Theoretically, there are 10 possible different dyadic combinations of bully-, victim-, noninvolved-, and bully/victim-positions (for a list, see Table 6.1, first columns). Four of these combinations are irrelevant because the relationship itself is not necessarily affected by bullying. These are combinations with noninvolved children. Children in such combinations may not have any systematic aggression related memories or expectations about each other. In the other six combinations the relationship between the two children is affected by bullying and victimization, both partners are "not noninvolved". These six combinations will be discussed below.

Perry et al. (1992) have described two of these combinations: The first one is the low-conflict asymmetric dyad in which one child is a bully, and the other is a victim. Children in such relationships may have systematic complementary aggression-related memories or expectations regarding their partner. The other combination described by Perry et al. (1992) is the high-conflict symmetrical relationship. They assume that in this relationship two bully/victims, or ineffectual aggressors as they call them, are engaged. Children in this relationship-type may have systematic

aggression related memories or expectations regarding their partner, that are not complementary or opposite, but more or less identical.

A third combination is the relationship between two bullies. On the one hand this combination is unlikely, because these children will not bully each other. Bullies are described as effectual aggressors (Perry et al., 1992), they will look for children that are "bully-able" and are unable to defend themselves against bully-acts. Other bullies do not apply to that profile. On the other hand a relationship with another bully offers all kinds of possibilities to bully a third child. Braat (1995) found male bullies to nominate each other relatively often as friends. Relationships of two victims — the fourth combination — might theoretically also exist. This combination is unlikely, because these children cannot be victimized by each other by definition. These children might look for friendship with each other to "share their fate". But such friendships do not occur relatively often (Braat, 1995), presumably because such relationships do not protect against bullies, since both partners are unable to organize effective resistance or defence.

In two other theoretical combinations a bully/victim is arranged in a relationship with a bully or with a victim. Here we assume that in such relationships the positions tends to be organized as in the pure asymmetrical dyad (cf. Perry et al., 1992). That is: If one partner is a clear bully, then the bully/victim will have the victim position in this relationship. If one partner is a clear victim, then the bully/victim will have the bully position in this relationship.

Children may be involved in more than one bullying affected relationship in their school class. Theoretically children may even simultaneously be involved in relationships in which they have opposite positions, as for example the bully-position in one relationship, and the victim-position in another.

THE GROUP LEVEL

The general typology described above may be applied to the group level as well. On this level the typology refers to stable differences in bullying involvement reputation of children within the school class. Bullies, victims, bully/victims, and noninvolved children may then be defined as children that are described as such by their classmates. Classification on this level is determined by the perception of bullying related behavior and interactions by classmates.

CORRESPONDENCE AND DIFFERENCE BETWEEN LEVELS

As described above the general bullying typology may be applied to all three levels of our model. That does not mean that each child has to be classified in the same way on each level. Meaningful classification differences between levels may exist. Children may for example be a bully in a bully-victim relationship (relationship level), but not have the reputation of being a bully in their school class (group level). Or children may regard themselves as a victim (individual level), but neither be involved in bully-victim relationships (relationship level) nor have that reputation in their

school class (group level). Some of these meaningful classification differences may be temporary, and refer to processes of change within the school class. For example, a child that enters a school class as a novice, and has all the individual characteristics of a typical bully, may not yet have developed the relationships and reputation that fits his habitus. The appearance of classification differences is by itself a validation of the model: if such differences were not found, then there should be no reason to distinguish between these levels. On the other hand there should also be at least moderate correspondence in classification: If there is no correspondence at all, then the question arises whether these levels concern the same phenomena. Taken together, validation of the model requires the existence of both meaningful correspondence and difference in classification between levels.

CHARACTERISTICS OF BULLYING INVOLVED CHILDREN

Pierce and Cohen (1995) summarized characteristics of victims: "Children who are consistently 'bullied' appear to be passive, weak, and socially isolated, though not necessarily physically deviant. In play groups, they are likely to be 'loners'" (p. 299). Olweus (1991) stated that "The behavior and attitude of the victims seem to signal to others that they are insecure and worthless individuals who will not retaliate if they are attacked or insulted", and "they are characterized by an anxious personality pattern, combined (at least in the case of boys) with physical weakness" (p. 423). Using a contrived play group procedure, Schwartz, Dodge, and Coie (1993) found evidence that suggests that submissive social behavior tends to invoke chronic victimization by peers. Perry et al (1992) called these children low conflict victims, to stress that they are not aggressive themselves.

Olweus (1991) described typical bullies "as having an aggressive personality pattern combined (at least in the case of boys) with physical strength" (p. 425). Furthermore, Olweus described bullies as having a more positive attitude to the use of violence, little anxiety and insecurity, and as impulsive and as having a strong need to dominate others. Pierce and Cohen (1995) use the word "aggressor" instead of "bully". They state that "aggressors tend to consistently relate to their victims in a hostile manner" (p. 297). Perry et al. (1992) called them effectual aggressors. Their aggressive behaviors are so effectively organized that they encounter relatively little resistance and are hardly engaged in overt conflicts.

Several descriptions were used for bully/victims, children that were generally described as high on both aggression and victimization. Perry et al. (1992) described a subgroup of ineffectual aggressors, that "perform aggression primarily in the context of extended and emotionally heated conflicts" (p. 310), but usually lose. Olweus (1978, 1991) described a category of provocative victims that is characterized by a combination of anxious and aggressive behavior patterns. They appear to elicit their being bullied by their own behavior, which is characterized by a combination of anxiety and

aggression. These children may be hyperactive, or have concentration problems and therefore irritate their peer environment. Dodge and Coie (1987) used the term reactive aggressors, they display hostile reactions to perceived threats. De Poorte, Veling, Haselager and van Lieshout (1994) described a subgroup of highly antisocial children that are also victimized and labelled them as aggressive victims. Taken together, the category of bully/victims appeared to be not yet well defined and described.

In this study we explored several groups of characteristics in relation to the general bullying typology. These measures included self-reports on the degree of bullying and victimization, self-reported depressive symptoms, peer reported sociometric status and classroom behavior, and, in a small sample of boys, concurrent and antecedent personality descriptions by adults.

Gender differences are known to exist in bullying typologies. In general boys are more often victims and bullies than girls (Boulton & Underwood, 1992; Olweus, 1991; Rigby & Slee, 1991; Rivers & Smith, 1994). We will explore gender differences in this study, without further hypotheses of their nature.

EXAMINING THE MODEL

Until now models that explicitly distinguish between the individual, relationship, and group levels, are hardly empirically tested for bullying and victimization phenomena. One reason is that the levels in such models are not easy to distinguish empirically. For example, if children are asked to report about their involvement in bullying, their reports might be determined by influences from all three levels, that is: their self-perceived individual behavioral styles and personal attitudes towards bullying, their self-perceived relationships, and self-perceived own reputation in class. The same might be true if children are asked to report about bullying involvement of other classmates. Their reports about other children might be influenced by their personal attitudes towards bullying, their relationships to these classmates, and by their perceived reputation of classmates. Reports of group supervisors (such as teachers) and parents are influenced by their personal preferences, too. Group supervisors are found to adapt their opinions about children in a group to their reputation (van der Ploeg, 1976). Independent observers that incidentally assess bullying phenomena in a school class may exaggerate the importance of the individual level, because they are ignorant of existing relationships and reputations.

The research goal of this study is to explore the psychological significance and relevance of the three-level model for bullying and victimization phenomena. We divided this main goal into three subgoals. First, we wanted to describe the prevalence of different bullying affected relationships in school classes. Second, we wanted to describe the prevalence of the four categories of children (bullies, victims, bully/victims and noninvolved children) at each of the three levels of our model. Third, we wanted to describe and test differences between the four categories of children at each of the three levels on a series of psychological characteristics.

In this study we used three classifications methods that approximate the general bullying typology separately for each of the three levels of the model, without pretending that the measurement problems we describe above are perfectly solved. We used self-reports about own bullying involvement to classify children at the individual level in one of the four categories of the general bullying typology. Children will tend to generalize their personal bullying experiences over interactions, relationships, and group processes, and in these generalized reports their own contributions and experiences will dominate. Therefore, we assume self-reports about own bullying involvement to be the best available indicator for individual bullying involvement, and therefore for the individual level. To classify children at the relationship level in one of the four categories of the general bullying typology, we used a specific application of sociometric techniques: We combined the sociometric reports of a target child on the bullying involvement of its peers with peer reports on bullying involvement of the target child. To classify children at the group level we used conventional sociometric peer reports on bullying involvement, in which separate reports by all classmates about a target child are generalized.

We had no explicit expectations about the prevalence of different bullying affected relationships (first research goal). We expected to find that different classification methods show substantial correspondence in their identification of bullies, victims, bully/victims or noninvolved children, but also that different classification methods show substantial and meaningful difference in their identification of bullies, victims, bully/victims or noninvolved children (second research goal). Some examples may illustrate this general hypothesis. Children that describe themselves as a victim (individual level) do not necessarily have this reputation by their classmates (group level). The percentage of self-reported victims may thus be higher than the percentage of group reported victims. Children that bully a lot may tend to conceal this in their self-reports, because they are aware that this behavior is socially undesirable. At the same time and for the same reason their classmates may report these children as bullies. The percentage of self-reported bullies may thus be lower than the percentage of group reported bullies. Children that are involved in bully-victim relationships as a bully (relationship level) do not need to describe themselves as bullies (individual level). Self-reported bully/victims (individual level) may seldom be involved in bully-victim relationships as victims (relationship level).

Regarding our third research goal we expected different classification measures to show substantial correspondence in their description of some characteristics of bullies, victims, bully/victims or noninvolved children, but also that different classification methods estimate the size of differences in some child characteristics differently. Again we give some examples: At all three levels, bullies might be expected to show more aggressive behavior than other categories. A classification based on self-reports might be more effective to describe differences in personality, which is expressed in greater differences between categories on personality measures.

Or a classification based on relationships might be more effective to describe friend-ship differences or prosocial behavior differences.

METHOD

SUBJECTS

Two related samples, a cross-sectional and a longitudinal sample, participated in this study. At the first and second measurement wave, in 1985 and 1986, the longitudinal sample consisted of 231 (100 %) and 210 (91%) boys, respectively (Cillessen, 1991). In Wave 3, in the spring of 1991, 190 boys (82 %) participated again. The cross-sectional sample entirely consisted of children in 102 school classes of the boys in the longitudinal sample of Wave 3.

The 102 school classes (grades 4 through 8) in the cross-sectional sample contained 2591 children, 2521 of them (97 %, mean age 11;00 year, SD 1;03 year) filled out one or more of the questionnaires. The other 70 children (3 %) did not participate for reasons that were not systematically registered, but mainly because they were absent. Furthermore, 197 children (8 %) were not included in this study, because they did not answer questions about their personal bullying involvement. Taken together, the cross-sectional sample included the longitudinal sample and consisted of 2324 children, 1099 girls (47 %) and 1225 boys (53 %). Their 102 classes were located in 59 elementary schools (89 % of the schools that were invited to participate) serving lower- and middle-class families in the Nijmegen/Arnhem area of the Netherlands; eight schools (eleven classes) were schools for special education. The average class size was 25.4 pupils (SD 6.6).

PROCEDURE

A classroom interview session, lead by a trained examiner, was arranged separately for each class. After a brief introduction, every child in class was given a booklet, that consisted of three parts: A bullying involvement questionnaire, a sociometric questionnaire, and a depressive symptoms questionnaire. The children themselves wrote down the questionnaire answers in their booklets, in principle without any help, although they were allowed to ask questions individually of the examiner or the classroom teacher during the session. After 75 minutes the session was ended.

The boys from the longitudinal sample were also asked to describe themselves with a personality Q-sort. Their mothers were asked to describe their sons with the same instrument. These Q-sorts were filled out at school, usually after the classroom data collection in the cross-sectional sample. One or more boys and their mothers were brought together in a separate room and received instructions simultaneously. Then, they individually provided a Q-sort description. Usually it took the children and their mothers 50 to 90 minutes to complete the Q-sort. Teachers of the boys in the longitu-

dinal sample were also asked to describe these boys with the same Q-sort, at a moment of their own choice.

MEASURES

Three instruments were used to collect information: a bullying and victimization self-report questionnaire, a sociometric questionnaire, and a depressive symptoms self-report questionnaire. Additionally, a personality Q-sort was administered in the longitudinal sample only.

Bullying and Victimization self-reports

To assess self-reported bullying involvement, we administered the complete junior version of the "bully/victim questionnaire" developed by Olweus (1989), in the Dutch translation of Liebrand, Van IJzendoorn, and Van Lieshout (1990). The Dutch junior version has 37 multiple choice items, the number of answering categories varies between 3 and 7. In this study we only report about three scales of this questionnaire, thereby using only 17 items. The first scale is *Exposure to Direct Bullying/Victimisation*, and has six items. Its internal consistency (Cronbach's α) was .75. A second scale is called *Exposure to Indirect Bullying/Social Isolation*, and has five items (internal consistency: .58). The scale *Bullying Other Students* has 6 items, (internal consistency: .77). In general, the internal consistency of these scales was considered not very high, but acceptable for our purposes. Scale scores were computed as sums of item scores.

Sociometric Questionnaire

After a brief instruction children were asked to answer 12 sociometric questions, 11 of them are reported here. For each question, children were asked to write down the names of three or fewer children. The names of children that could be nominated, all children in class, were written on the blackboard beforehand. Male and female nominations were allowed; self-nominations were not. The first two questions concerned peer acceptance ("like most") and peer rejection ("like least"). In another question, classroom best friendships were traced. Six questions concerned peer reported social behavior. These items have proven to be discriminating between sociometric status groups (Coie, Dodge, & Coppotelli, 1982). They included: cooperates, starts fights, disrupts, is shy, offers help, and seeks help. Two other sociometric questions concerned involvement in Bullying and Victimization. Raw scores for sociometric questions were computed by counting the number of times subjects were nominated by their classmates. These raw scores were standardized within class in order to correct for distribution differences caused by circumstances like class size differences.

In order to reduce the number of peer reported variables, we completed a principal component analysis on these six peer reported behavioral descriptions, followed by varimax rotation. This analysis revealed three factors with an eigenvalue greater than 1.0, that explained 77 % of the variance. Factor 1 had highest loadings on starts fights (.89), and disrupts (.89). It also had a moderate loading (.39) on seeks help. This factor was labelled Antisocial Behavior. Factor 2 had highest loadings on

offers help (.90) and cooperates (.84), and was labelled Prosocial Behavior. The third factor had highest loadings on is shy (.77), and seeks help (.72) and was labelled Shyness/Withdrawal". Other loadings were lower than .35 and are not discussed here. Factor scores were used in further analyses.

Depressive Symptoms Questionnaire

An item subset was used of the Depression Inventory for Children (DVK; "Depressie Vragenlijst voor Kinderen"; De Wit, 1985, 1987). We only used four (out of ten) scales of this questionnaire, thereby using only 46 (out of 107) (yes-no) two-point-scale items. The selected scales are assumed to measure core symptoms of childhood depression. Used scales were: *Depressive mood*; *Decrease, delay, or regression of functions and behavior*, *Negative self-evaluations*; and *Physical complaints*. The sum score of the items in these four scales was used as an indicator of the degree in which a person has depressive symptoms (46 items, $\alpha = .90$).

Personality

Person descriptions of boys in the longitudinal sample were collected using the California Child Q-set (CCQ; Block & Block, 1980), in a Dutch adaptation (NCKS; Van Lieshout, Riksen-Walraven, Ten Brink, Siebenheller, Koot, Mey, Janssen, & Cillessen, 1986). These person descriptions had also been collected in Wave 1 (1986) and Wave 2 (1987) of the longitudinal sample. The person descriptions were given by teachers (all waves, usable completed CCQ's in subsequent waves: 167, 130, 56), and mother (Wave 3 only, usable completed CCQ's 167).

The CCQ consists of 100 statements describing a wide range of behavior and personality characteristics. Each statement is printed on a separate card. The 100 cards were sorted by the respondent into nine categories ranging from "least characteristic" (Category 1) to "most characteristic" (Category 9), using a rectangular 9-point forced distribution. Eleven statements were placed in each category except Category 5, in which 12 statements were placed. The number of the category in which an item is arranged, is used as the item score.

From these CCQ person descriptions, subject scale scores for the Big Five personality dimensions were computed, independently for each wave and rater, using a method developed by Van Lieshout and Haselager (1993, 1994). Scale scores were computed by averaging item scores with high loadings on factors in a principal component analysis, that could be interpreted within the five factor model. Internal consistencies of these scales are reported elsewhere (Haselager, this volume, Table 2.3). In general, the internal consistency of teacher and mother scales was considered acceptable.

IDENTIFYING BULLIES, VICTIMS, BULLY/VICTIMS AND NONINVOLVED CHILDREN

Each child was classified three times in one of four categories of bullying involvement: as a bully, as a victim, as a bully/victim, or as a noninvolved child. This threefold classification corresponds to the three levels of our model: the individual level, the relationship level, and the group level. Self-reports were used for classifi-

cation at the individual level; for classification at the relationship and group level we used sociometric data.

Classification at the individual level

Following conventions in this area of research (Olweus, 1989, 1991; Mooij, 1991; Whitney & Smith, 1993), two items from the Olweus "bully/victim questionnaire" were used to classify children in one of the four categories of bullying involvement at the individual level. Questionnaire item 7 asks: "How often have you been bullied in school this term?" Children that answered "now and then", "about once a week", or "several times a week" were classified as self-reported victims. Item 26 asks: "How often have you taken part in bullying other students in school?" Children that answered "now and then", "about once a week" or "several times a week", were classified as self-reported bullies. Children that described themselves both as victim on question 7 and as bully on question 26 were classified as bully/victims. Otherwise children were classified as noninvolved.

Classification at the relationship level

Classification at the relationship level was based on sociometric data and has two steps. In the first step, we classified the bullying involvement relationships of each child in class, for each possible dyadic combination with classmates. If a class contains k children, then k-1 combinations were classified for each child. In the second step, we aggregated these k-1 classifications separately for each child, to a generalized bullying involvement status at the relationship level. Below, we describe these two steps in detail.

First classification step. To classify the individual bullying involvement relationship of a child in a dyad, we combined answers of two sociometric questions. In one question children were asked to nominate three classmates that are victims, in the other question children were asked to nominate three classmates that are bullies. The position of a child in a dyad was determined by the nomination pattern on these two questions of the dyadic partner and vice versa. Since a child could be nominated or not on each of these two questions, it could have four different positions in a dyad: 1) being nominated by partner only as a victim, 2) being nominated by partner only as a bully, 3) being nominated by partner both as a bully and as a victim, and 4) not being nominated by partner. These four positions correspond to the four main categories of bullying involvement we described above. When the bullying involvement positions of both dyadic partners are combined, 10 different possible relationship types between the two dyadic partners may be found. These relationship types are described in the first columns of Table 6.1.

Second classification step. The generalized bullying involvement status of each child in class at the relationship level was determined by aggregating all k-1 bullying involvement relationships with classmates. Children were classified in one of the four bullying involvement categories using the following decision rules:

• *Noninvolved*. Children were classified as "noninvolved" if they were neither nominated as a bully nor as a victim by dyadic partners, or if they were only nomi-

nated as a bully and/or as a victim by dyadic partners that they did not nominate themselves.

• *Victim*. Children were classified as a "victim" if they were nominated most often as a victim by the dyadic partners that they nominated themselves as a bully and/or as a victim.

• *Bully*. Children were classified as a "bully" if they were nominated most often as a bully by the dyadic partners that they nominated themselves as a bully and/or as a victim

• *Bully/victim*. Children were classified as a bully/victim if they were most often simultaneously nominated as a bully and a victim by the dyadic partners that they nominated themselves as a bully and/or as a victim, or if they were nominated equally often as a bully and a victim by the dyadic partners that they nominated as a bully and/or as a victim.

We illustrate this procedure with a hypothetical example in Figure 6.1, that describes target child John's (centre of the figure) "bullying involvement network". There are three children that both nominate John and are nominated by John: Joe, Jack, and Bill. The nomination patterns in the three corresponding dyads determine John's bullying involvement status at the relationship level (names of these classmates are underscored in the figure). In these three dyads, target child John is nominated twice as a victim, by Joe and Jack. Furthermore John is nominated once as a bully, by Bill. John nominates Joe and Bill both as a bully and as a victim, and Jack only as a bully. John's generalized bullying involvement status is victim, since the number of exchanged nominations in dyads in which he holds this position is the highest. John also nominates Tom as victim. But Tom neither nominates John as a victim nor as a bully. Therefore the nominations of John and Tom do not count for John's generalized bullying involvement status at the relationship level. John is also nominated by Robert, Doris and Vicky, as a bully, victim, and bully/victim respectively. But since John does not nominate these three children, their nominations do not count either for John's generalized bullying involvement status at the relationship level. John and Rita nominate each other neither as a victim nor as a bully. In this dyad there is no bullying involvement at all.

Classification at the group level
To identify children that are generally regarded bullies, victims, bully/victims or noninvolved by their classmates as a group, we used the same two sociometric questions as used at the relationship level. We classify a child as a victim at the group level if that child is nominated as such by two or more classmates that are not nominated in turn by that child. In other words the child has received two or more unilateral victim-nominations. We define a child as a bully at the group level if that child is nominated as such by two or more classmates that are not nominated in turn by that child. In other words the child has received two or more unilateral bully-nominations. If a child both receives two or more unilateral bully-nominations and two or more unilateral

FIGURE 6.1
Hypothetical Example:
John's Bullying Involvement Network
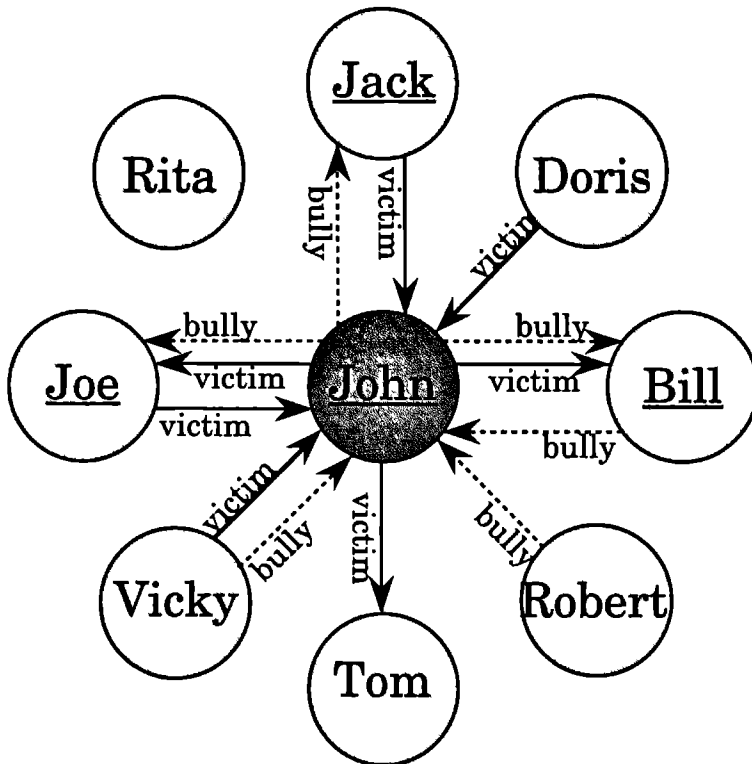
Note. Arrows start at a nominating child, and point to the nominated child, as a victim (plain line), or a bully (dashed line). Children with names underscored determine John's bullying involvement status at the relationship level.

victim-nominations, then it is classified as a bully/victim at the group level. All other children are classified as noninvolved. In the hypothetical example of John's bullying determine John's bullying involvement at the group level, since their nominations are not unilateral. John received two unilateral victim nominations (given by Doris and Vicky), and two unilateral bully nominations (given by Robert and Vicky) and is therefore classified as a bully/victim at the group level.

In sum, self-report questions were used to determine children's bullying status at the individual level. Sociometric questions about bullying and victimization were used twice: First to classify children at the relationship level, and then to classify them at the group level. The assumption behind this strategy is that in sociometric questions children will tend to nominate those classmates that are the most proximal to themselves on that question. So if children are asked to nominate bullies they will start to nominate those children that bully them. If children are not bullied themselves, then they will nominate those children that most saliently bully other children. And if children are asked to nominate victims, they will start to nominate those children that they themselves bully. If children themselves do not bully, then they will nominate those children that are most saliently victimized by others in class.

RESULTS

This result section has three parts. First, we describe information about numbers of bullying involvement relationships in school classes. In this section results are organized in terms of relationships, not persons. In the second section we present information about numbers of bullies, victims, bully/victims and noninvolved children at each of the three levels of our model, as well as combinations of bullying involvement at the three levels. In the third section we describe and test differences between the four categories of children at each of the three levels on a series of dependent variables.

IDENTIFYING BULLYING INVOLVEMENT RELATIONSHIPS

This section concerns our first research goal: description of the prevalence of different bullying affected relationships in school classes. Numbers of different bullying affected relationships are presented in Table 6.1. These numbers are counted for the cross-sectional sample as a whole, in other words summed over persons and school classes. In the three most left columns of Table 6.1, the relationship type is described with an arbitrary character label, and the bullying involvement position of the two children in the relationship. In the next six columns absolute and relative frequencies of these relationships are presented, grouped according to the gender type of the relationship.

TABLE 6.1

Numbers of Dyadic Relationships in the Sample (N = 2324), Categorized According to Bullying Involvement Status of the Two Children ("one" and "other") in the Dyad

| | BULLYING INVOLVEMENT TYPE OF DYAD | | GENDER TYPE OF DYAD | | | | | | | |
| | | | Female | | Male | | Mixed | | Total[1] | |
Label	Position of one Child:	Position of other Child:	#	%	#	%	#	%	#	%
NONAFFECTED RELATIONSHIPS										
A	noninvolved	noninvolved	5242	77.7	5164	63.4	11432	78.0	21838	73.9
B	noninvolved	victim	1041	15.4	1031	12.7	1354	9.2	3426	11.6
C	noninvolved	bully	243	3.6	1383	17.0	1500	10.2	3126	10.6
D	noninvolved	bully/victim	65	1.0	180	2.2	182	1.2	427	1.4
AFFECTED RELATIONSHIPS										
E	bully	victim	55	.8	157	1.9	130	.9	342	1.2
F	victim	victim	74	1.1	55	.7	38	.3	167	.6
G	bully	bully	10	.1	129	1.6	19	.1	158	.5
H	bully	bully/victim	5	.1	24	.3	7	.0	36	.1
I	victim	bully/victim	10	.1	19	.2	2	.0	31	.1
J	bully/victim	bully/victim	1	.0	2	.0	0	.0	3	.0
TOTAL			6746	100	8144	100	14664	100	29554	100

Note. # number of dyadic relationships.

[1] Types of dyadic relationships (in rows) are sorted according to total numbers.

The gender type may be either female (both children are girls), male (both children are boys), or mixed (one child is a girl, the other a boy). The two most right columns present absolute and relative frequencies for the whole sample. The bullying involvement relationship types are sorted according to the frequencies in these two columns.

The first four rows, labelled A, B, C, and D in Table 6.1 (above the dashed line), concern dyads in which there is no genuine bullying involvement relationship, since one of the children or both are noninvolved, that is, are not nominated as a bully or a victim by the dyadic partner. The total number of these four types of "nonaffected" relationships is 28822 (97.5 %). The total number of "affected" relationships (below the dashed line) is 739 (2.5%). The average number of genuine bullying affected relationships per subject is 0.3, while the average number of relationships with classmates is 24.4. So in the vast majority of relationships within school classes of elementary school children, bullying is not an important issue. The percentage of "bullying affected" relationships may be an underestimate, since the number of nominations allowed to be given by one person was restricted to 3 victim nominations and 3 bullying nominations. But the average numbers of actually given victim and bully nominations were 2.0 and 1.9, respectively. We therefore consider the chance of underestimation not very high.

Nearly half of all bullying affected relationships concerns the relationship with one child as a bully, and the other as a victim. Bullying affected relationships in which a child is identified both as a bully and a victim by the other child are rare (70 relationships (0,2 %) in rows labelled H, I, and J). This suggests that children who both bully and are victimized, are not an important category in the perception of nominating classmates: they appear to nominate peers either not, or as a bully or as a victim, but seldom both as a victim and a bully.

There are clear gender effects. The percentages of "bullying affected" relationships (below the dashed line) for female, male and mixed dyads are 2.3, 4.8, and 1.3, respectively. Bullying and victimization appears to occur most frequently in same gender dyads, especially in boys.

IDENTIFYING BULLIES, VICTIMS, BULLY/VICTIMS, AND NONINVOLVED CHILDREN

This section concerns our second research goal: description of the prevalence of the four categories of children (bullies, victims, bully/victims and noninvolved children) at each of the three levels of our model.

The total number of possible configurations of four categories in three levels is (4 * 4 * 4 =) 64. In the three most left columns of Table 6.2 these configurations are described at each of the three levels of the model. The three columns headed with O % present the observed frequencies of these configurations, separately for girls, boys, and total.

The most left column of Table 6.2 refers to the individual level in the configuration. The first 16 rows are about configurations with children noninvolved in bullying on the individual level. These configurations are labelled "N", and was assessed using self-reports. So these configurations refer to the 1645 (70.8 %) children who declared themselves as not bullying and not being victimized. This percentage is the sum of the percentages in the first 16 cells in the column headed with "O %" nested under "Total". The next 16 cells in this column are percentages of configurations (labelled "B") with children describing themselves as a bully. The sum of these percentages is 10.2, which accounts for 237 children. In the same way the table reports 16 configurations (labelled "V") with 331 children (14.2 % of the sample) that are self-reported victims, and 16 configurations (labelled "C") with 111 children (4.8 % of the sample) that are self-reported bully/victims. These percentages and numbers still refer to the individual level.

The second column of Table 6.2 concerns the relationship level. Again there are four groups of 16 configurations, and they are labelled with the same characters as on the individual level. We found 1516 children (65.2 %) to be noninvolved on the relationship level, 381 children (16.4 %) were bullies, 366 children (15.7 %) were victims and 61 children (2.6 %) were bully/victims. Again these percentages are sums of the corresponding percentages in the cells in the column headed with "O %" nested under "Total".

The third column of Table 6.2 concerns the group level. Here there are also four groups of 16 configurations, and they are labelled with the same characters as on the individual level. We found 1307 children (56.2%) to be noninvolved on the group level, 482 children (20.7 %) were bullies, 523 children (22.5 %) were victims and 12 children (0.5 %) were bully/victims.

The numbers and percentages, as well as the specific children in the same categories on different levels are not the same. For example, we found 14.2 %, 15,7 % and 22.5 % victims at the individual, relationship and group level, respectively. We explored differences and correspondences in categorization of children by pairwise comparison of levels. We found both a clear difference (χ^2 = 406.4, $\underline{df}$ = 9, $\underline{p}$ < .001) and a moderate correspondence (Contingency Coefficient (hereafter $\underline{CC}$) = .39, $\underline{p}$ < .001; κ (Cohen's "Kappa") = .26) between the categorizations on the individual and the relationship level. We also found both a clear difference (χ^2 = 363.4, $\underline{df}$ = 9, $\underline{p}$ < .001) and a moderate correspondence ($\underline{CC}$ = .37, $\underline{p}$ < .001; κ = .23) between the categorizations on the individual and the group level. Furthermore, we found both a clear difference (χ^2 = 1050.6, $\underline{df}$ = 9, $\underline{p}$ < .001) and a moderate correspondence ($\underline{CC}$ = .56, $\underline{p}$ < .001; κ = .42) between the categorizations on the relationship and the group level. Both the difference and the correspondence between this latter pair of levels are stronger than those between the two first pairs of levels, despite the fact that categorization on the relationship and group level was based on the same sociometric questions. Taken together, these systematic differences and correspondences clearly support our model

TABLE 6.2
Configural Frequency Analysis Results for Three Levels of Bullying Involvement, Separately for Boys, Girls, and Total

Configuration[1]			Girls ($\underline{n}$ = 1099)[2]				Boys ($\underline{n}$ = 1225)[2]				Total ($\underline{N}$ = 2324)[2]			
I	R	G	O %	E %	Z	*	O %	E %	Z	*	O %	E %	Z	*
N	N	N	50.77	38.70	6.44	T	29.06	17.07	10.16	T	39.33	25.97	12.64	T
N	N	B	2.00	3.08	-2.03		9.06	13.05	-3.87	A	5.72	9.58	-6.00	A
N	N	V	8.92	14.30	-4.72	A	5.71	7.55	-2.33		7.23	10.39	-4.73	A
N	N	C	.09	.26	-1.08		.16	.22	-.40		.13	.24	-1.08	
N	B	N	2.27	3.45	-2.09		4.33	7.45	-4.01	A	3.36	6.53	-5.98	A
N	B	B	1.27	.27	6.33	T	9.06	5.70	4.93	T	5.38	2.41	9.24	T
N	B	V	.55	1.27	-2.14		.65	3.29	-5.09	A	.60	2.61	-5.99	A
N	B	C	.00	.02	-.50		.00	.09	-1.08		.00	.06	-1.18	
N	V	N	3.46	9.67	-6.63	A	1.63	3.95	-4.09	A	2.50	6.27	-7.27	A
N	V	B	.27	.77	-1.87		.57	3.02	-4.94	A	.43	2.31	-5.97	A
N	V	V	6.10	3.57	4.42	T	3.51	1.75	4.67	T	4.73	2.51	6.77	T
N	V	C	.00	.06	-.84		.00	.05	-.78		.00	.06	-1.16	
N	C	N	.27	.81	-1.99		.33	1.06	-2.50		.30	1.04	-3.51	A
N	C	B	.27	.06	2.71		.90	.81	.34		.60	.39	1.69	
N	C	V	.27	.30	-.17		.57	.47	.52		.43	.42	.09	
N	C	C	.09	.01	3.86	T	.00	.01	-.41		.04	.01	1.65	
B	N	N	2.55	2.85	-.59		2.69	3.72	-1.86		2.62	3.74	-2.78	
B	N	B	.18	.23	-.31		2.29	2.84	-1.16		1.29	1.38	-.36	
B	N	V	.09	1.05	-3.11		.16	1.64	-4.04	A	.13	1.50	-5.39	A
B	N	C	.00	.02	-.46		.00	.05	-.76		.00	.03	-.89	
B	B	N	.82	.25	3.72	T	.98	1.62	-1.77		.90	.94	-.18	
B	B	B	.82	.02	18.64	T	6.29	1.24	15.85	T	3.70	.35	27.46	T
B	B	V	.09	.09	-.03		.24	.72	-1.95		.17	.38	-1.60	
B	B	C	.00	.00	-.14		.08	.02	1.49		.04	.01	1.78	
B	V	N	.36	.71	-1.37		.24	.86	-2.33		.30	.90	-3.05	
B	V	B	.00	.06	-.79		.24	.66	-1.78		.13	.33	-1.70	
B	V	V	.55	.26	1.83		.73	.38	2.01		.65	.36	2.28	
B	V	C	.00	.00	-.23		.00	.01	-.37		.00	.01	-.44	
B	C	N	.00	.06	-.81		.08	.23	-1.09		.04	.15	-1.34	
B	C	B	.18	.00	8.51	T	.24	.18	.57		.22	.06	3.27	
B	C	V	.00	.02	-.49		.00	.10	-1.12		.00	.06	-1.18	
B	C	C	.00	.00	-.07		.00	.00	-.19		.00	.00	-.18	

(table continues)

TABLE 6.2 *(continued)*

Configuration[1]			Girls ($\underline{n}$ = 1099)[2]				Boys ($\underline{n}$ = 1225)[2]				Total ($\underline{N}$ = 2324)[2]			
I	R	G	O %	E %	Z	*	O %	E %	Z	*	O %	E %	Z	*
V	N	N	4.55	7.49	-3.56	A	2.69	3.57	-1.63		3.57	5.23	-3.49	A
V	N	B	.00	.60	-2.56		.90	2.73	-3.88	A	.47	1.93	-5.05	A
V	N	V	3.00	2.77	.47		2.37	1.58	2.20		2.67	2.09	1.92	
V	N	C	.00	.05	-.74		.00	.05	-.74		.00	.05	-1.06	
V	B	N	.36	.67	-1.23		.24	1.56	-3.68	A	.30	1.31	-4.26	A
V	B	B	.00	.05	-.76		1.14	1.19	-.16		.60	.48	.82	
V	B	V	.09	.25	-1.04		.24	.69	-1.87		.17	.53	-2.35	
V	B	C	.00	.00	-.22		.16	.02	3.57	A	.09	.01	3.25	
V	V	N	1.91	1.87	.09		.82	.83	-.04		1.33	1.26	.31	
V	V	B	.00	.15	-1.28		.49	.63	-.63		.26	.47	-1.46	
V	V	V	4.37	.69	14.65	T	3.51	.37	18.20	T	3.92	.50	23.14	T
V	V	C	.09	.01	2.34		.00	.01	-.36		.04	.01	1.41	
V	C	N	.09	.16	-.56		.16	.22	-.44		.13	.21	-.85	
V	C	B	.27	.01	7.71	T	.41	.17	2.03		.34	.08	4.62	T
V	C	V	.00	.06	-.80		.41	.10	3.46		.22	.08	2.18	
V	C	C	.09	.00	9.23	T	.16	.00	10.58	T	.13	.00	13.95	T
C	N	N	.91	1.47	-1.53		1.14	1.68	-1.45		1.03	1.75	-2.62	
C	N	B	.00	.12	-1.13		.82	1.28	-1.44		.43	.65	-1.29	
C	N	V	.36	.54	-.81		.73	.74	-.03		.56	.70	-.82	
C	N	C	.09	.01	2.73		.00	.02	-.51		.04	.02	1.02	
C	B	N	.00	.13	-1.20		.33	.73	-1.66		.17	.44	-1.95	
C	B	B	.18	.01	5.57	T	1.47	.56	4.25	T	.86	.16	8.35	T
C	B	V	.09	.05	.64		.00	.32	-1.99		.04	.18	-1.53	
C	B	C	.00	.00	-.10		.00	.01	-.34		.00	.00	-.31	
C	V	N	.36	.37	-.02		.24	.39	-.81		.30	.42	-.90	
C	V	B	.00	.03	-.57		.41	.30	.71		.22	.16	.72	
C	V	V	.91	.14	6.96	T	.98	.17	6.82	T	.95	.17	9.11	T
C	V	C	.00	.00	-.16		.00	.00	-.25		.00	.00	-.30	
C	C	N	.00	.03	-.58		.08	.10	-.25		.04	.07	-.50	
C	C	B	.00	.00	-.16		.16	.08	1.03		.09	.03	1.80	
C	C	V	.00	.01	-.35		.08	.05	.58		.04	.03	.43	
C	C	C	.00	.00	-.05		.00	.00	-.13		.00	.00	-.12	

Note. [1] Configuration at individual (*I*), relationship (*R*), and group level (*G*); *N*: not involved, *B*: bully, *V*: victim, *C*: bully/victim combination. [2] O: observed frequency, *E*: expected frequency, *Z*: $\underline{z}$-test for configuration, *: Bonferroni adjusted result of $\underline{z}$-test, *T*: Type, *A*: Antitype ($\underline{p}$ < .0002604).

of three different levels of bullying and victimization. The systematic moderate correspondence between classification methods proves that these classifications of children refer at least partly to the same phenomena. The significant chi-square tests prove that the differences of percentages of children in different categories can not be explained by differences in sensitivity of methods, they refer to systematic pattern differences, or in other words, to different aspects of bullying and victimization represented by the three levels of the model.

The Columns 4 to 7, and 8 to 11, present the same kind of information as described above, but separated for girls and boys, respectively. The pattern of results for the difference and correspondence tests is more or less the same as for the total sample.

Table 6.2 lists 64 configurations of bullying involvement categories at the three levels. We used configural frequency analysis ("CFA", Von Eye, 1990) to further explore the reported frequencies in the table. The purpose of this further analysis was to detect special configurations: With CFA we tested which of the configurations described in Table 6.2 occurred more often or less often than might be expected by chance. The presence of such special configurations is by itself additional support for the use of three distinct levels of bullying involvement. Additionally, the nature of these special configurations may teach us more about the nature of bullying and victimization phenomena. Following CFA-conventions, we referred to special configurations as "Types" and "Antitypes". Types occur more often than expected by chance, Antitypes occur less often than expected by chance. The by-chance expected frequencies are described in columns of Table 6.2 that are headed with "E %". These expected frequencies are computed by multiplying the three proportions (= percentages / 100) found for the referred category at each level. For example, the expected frequency of the configuration N-N-N (noninvolved at each level) is computed as the product of .7079 (proportion noninvolved at the individual level), .6523 (proportion noninvolved at the relationship level), and .5623 (proportion noninvolved at the group level). This product equals to .2597. When this product is multiplied with 100 one finds the percentage that is described in the first cell in the column headed with "E %" nested under "Total". The test used for detection of Types and Antitypes is a z-test as described in formula 1.4 by Von Eye (1990, p. 14). The z-test results are presented for each configuration in Table 6.2 in columns headed with "Z". To decide whether a specific configuration was a Type or an Antitype we used the Bonferroni adjusted level of the conventional α-level (.05), corrected for the number of tests (192). This critical α-level was (05/192=) .0002604. The corresponding critical absolute z-value on a two-tailed test for this α-level is 3.47. In the total sample (most right columns of Table 6.2), we found 9 Types and 11 Antitypes in the 64 configurations. They are indicated by a "T" or an "A", respectively in columns headed with an asterisk (*). The three most salient Types are N-N-N, B-B-B and V-V-V, in which the classification on the three levels is the same. These three configurations mainly determine the correspondence results, described above. Two other Types are N-B-B and N-V-V, these Types have in

common that there is no bullying involvement at the individual level. Children described by these configurations do not report themselves as a bully or a victim, but they are involved in relationships as a bully or a victim, respectively, and also have this reputation at the group level. The existence of the Antitypes N-N-B and N-N-V suggest a hierarchic but trivial order of the relationship and the group level: If children do not consider themselves as a bully or a victim, and they are also noninvolved in bullying relationships, then it is unlikely that they will have such a reputation. The Antitypes N-B-N, N-V-N and N-C-N illustrate that it is also unlikely to have bullying involvement relationships and not to have a corresponding reputation. In other words: It is unlikely that involvement in bully-victim relationships remains unnoticed by either the children involved or by their classmates. Some Antitypes are about configurations with contradictions between levels (e.g. N-B-V, N-V-B, B-N-V, V-N-B, V-B-N). The Antitype V-N-N illustrates that a victimization self-report combined with absence of bullying affected relationships and reputation is unlikely to occur. As a Type, the category of bully/victims only occurs in four configurations with expected and observed frequencies lower than 1 %. These Types are always about children that are victims or bully/victim on the individual level.

Table 6.2 also shows that 8 out of 9 Types found in the total sample are also found in separate subgroups of girls and boys. Additional girl Types are the configurations N-C-C, B-B-N, B-C-B. We found no special boy Types. Only one Antitype, N-V-N was found in both boys and girls. These children are victims in bullying involvement relationships but do not consider themselves as a victim and also do not have the reputation of a victim. Two girl Antitypes are N-N-V, and V-N-N, seven boys Antitypes are N-N-B, N-B-N, N-B-V, B-N-V, V-N-B, V-B-N, V-B-C.

DIFFERENCES BETWEEN BULLIES, VICTIMS, BULLY/VICTIMS AND NONINVOLVED CHILDREN

This section concerns our third research goal: the description and testing of differences between the four categories of children at each of the three levels on a series of psychological characteristics. We used a series of ANOVA's to pursue this goal. As described above the numbers of children per subgroup (condition) or combination of subgroups (configuration) differed extremely (varying from 0 to 1645). Therefore the complete model could not be tested as a whole, using ANOVA's. Instead, we tested parts of the model, using subsets of conditions and configurations. Furthermore, we adapted numbers of children per condition to the number of children in smaller conditions.

This section has five parts. First, we describe differences between subgroups on four self-reported dependent variables, regarding bullying involvement and depressive symptoms. Second, subgroup differences were tested on six peer-reported dependent variables regarding peer attractiveness and peer behavior. Both parts and their tables have the same structure. In these two parts all four main subgroups of children (all

four conditions) are included, and one-way ANOVA's are used to test differences between subgroups. Third, we present summary results of three-way ANOVA's on both self and peer-reported dependent variables, in a subset of our sample, from which the subgroup of bully/victims was excluded. Fourth, we describe differences between the main Types and Antitypes described above, on both self and peer-reported dependent variables. Fifth, we describe personality differences between subgroups in the longitudinal sample.

DIFFERENCES ON SELF-REPORTED VARIABLES

Table 6.3 shows ANOVA results about four self-reported variables: victimization, social isolation, bullying other students, and depressive symptoms.

Separately for each independent variable we created three subsamples. Using random selection, the number of children per condition was reduced to 52 (i.e., the number of children in the one but smallest condition over all three levels). The smallest subgroup, of bully/victims on the relationship level, had only ten children in it. So these analyses were performed in subsamples of 208 children on the individual and group level, and 166 children on the relationship level.

In these subsamples we executed a series of one-way ANOVA's, followed by Scheffé pairwise comparison tests. The results of the overall difference tests are presented in the two most right columns of Table 6.3, using the F-ratio, and the correlation ratio (η). Significant ($\underline{p} < .05$) differences were found on all 4 constructs, and almost always with each of the three independent variables. The results for the independent variables (i.e. levels of the model) are presented in three separate lines, grouped below each construct. For example, in depressive symptoms we found differences between subgroups for the individual and group level, but not for the relationship level. This last result is the only exception on the general pattern of significant differences between conditions.

The average correlation ratios (η) for the individual, relationship and group level are .57, .28, and .37, respectively. This suggests that the individual level has the strongest discriminating power for these self-report constructs, while the relationship level has the lowest discriminating power.

Results of Scheffé pairwise comparison tests are denoted in the table using alphabetic superscripts, together with the subgroup mean scores. An "a" is always assigned to the subgroup with the lowest score. Differences denoted with superscripts only refer to the same level, that is, to the same line in the table. If two subgroups have no superscript in common, then a significant ($\underline{p} < .05$) pairwise difference was found between these two subgroups. For example, on "victimization", tested at the individual level, bullies and noninvolved children do not differ from each other. Furthermore, victims and bully/victims do not differ from each other. Additionally, victims and bully/victims score significantly higher than the noninvolved children and the bullies. On the group level this pattern is slightly different. Bullies and noninvolved children do not differ from each other. Victims score higher than noninvolved

TABLE 6.3
Oneway ANOVA's on Self Reported Dependent Variables, Separately for the Three Levels of the Model

| CONSTRUCT | GROUP MEANS & SCHEFFÉ TESTS | | | | OVERALL TEST | |
| | non-involved | Bullies | Victims | Bully/Victims | F (3, 166-208) | η^1 |
Level						
victimization						
individual	.40[a2]	.55[a]	1.54[b]	1.80[b]	82.58[***3]	.74
relationship	.55[a]	.71[ab]	.95[b]	1.08[b]	6.15[***]	.29
group	.46[a]	.62[ab]	.89[b]	1.50[c]	12.53[***]	.43
social isolation						
individual	.60[a]	.66[a]	1.31[b]	1.13[b]	25.52[***]	.52
relationship	.71	.76	.95	.96	3.08[*]	.21
group	.63[a]	.70[a]	1.08[b]	1.57[b]	12.61[***]	.44
bullying other students						
individual	.72[a]	1.81[b]	.80[a]	1.89[b]	84.45[***]	.74
relationship	.76[a]	1.56[b]	.96[a]	1.00[a]	13.66[***]	.41
group	.72[a]	1.29[b]	.81[a]	1.03[ab]	8.59[***]	.37
depressive symptoms						
individual	9.11[a]	10.30[ab]	13.82[bc]	14.84[c]	6.23[***]	.29
relationship					2.53ns	.19
group	8.35[a]	7.30[a]	12.80[bc]	7.34[ab]	5.35[**]	.30

Note. [1]: Correlation ratio ("èta"); [2]: If two subgroups in a row have no superscript in common, then a significant ($p < .05$) pairwise difference was found between these two subgroups; [3]:[*] $p < .05$, [**] $p < .01$, [***] $p < .001$, ns: not significant.

children, but not higher than bullies. Bully/victims score higher than all three other subgroups. In general, noninvolved children have the lowest scores on all four constructs.

DIFFERENCES ON PEER-REPORTED VARIABLES

Table 6.4 shows ANOVA and Scheffé results on peer-reported variables. The structure of the table is the same as in Table 6.3 The upper three constructs refer to peer group attractiveness: *acceptance* (being liked), *rejection* (being disliked), and *is a friend*. The lower three constructs concern the peer behaviors *Antisocial Behavior*, *Prosocial Behavior*, and *Shyness/Withdrawal*. We used the same subsamples as in the analyses reported in Table 6.3.

Significant ($p < .05$) differences were found on all six constructs, although not always at each of the three levels. Exceptions were Prosocial Behavior at the individual and relationship level and Shyness/Withdrawal at the relationship level.

The average correlation ratios (η) for the individual, relationship and group level are .24, .25, and .43, respectively. This suggests that the group level has the strongest discriminating power for these peer-report constructs, while the individual and relationship level have almost the same and the lowest discriminating power. The discriminating power of the attractiveness constructs (three upper constructs in the table) is .33, averaged over the nine tests. This is higher than the discriminating power of the behavioral orientation constructs, that had an average of .28.

Subgroup means and Scheffé tests revealed that bullies did not differ from noninvolved children on acceptance, is a friend, Prosocial Behavior, and Shyness/Withdrawal, regardless the level that was tested. Bullies had higher scores on Antisocial Behavior and peer rejection, the latter only on the relationship and group level. Victims do not differ from noninvolved children on Antisocial Behavior and had lower scores on acceptance and is a friend, although not when tested on the relationship level. Victims also had higher scores on rejection and Shyness/Withdrawal, both only at the group level. Bully/victims scored like victims on acceptance, is a friend, Prosocial Behavior, and Shyness/Withdrawal. Bully/victims scored like bullies on rejection and Antisocial Behavior, but their rejection score on the group level was extremely high, and higher than that of bullies.

THREE-WAY ANOVA'S

The one-way ANOVA's in the two previous sections had two clear limitations. First, the unique explaining power of the independent variables (the three levels of the model) could not be estimated. Furthermore, the interactions between the independent variables were not investigated. Compensating for these limitations required at least three-way full factorial ANOVA's. In such a design the three levels of the model should serve simultaneously as independent variables. The number of possible combinations of conditions in this design is (4*4*4 =) 64, the number of configurations described in Table 6.2. But as noted above, this design could not be tested without

TABLE 6.4

Oneway ANOVA's on Peer Reported Dependent Variables, Separately for the Three Levels of the Model

CONSTRUCT Level	GROUP MEANS & SCHEFFÉ TESTS Non-involved	Bullies	Victims	Bully/Victims	OVERALL TEST F (3, 166-208)	η^1
acceptance						
individual	.08[b2]	.16[b]	-.44[a]	-.43[a]	6.46[***3]	.29
relationship	.03[bc]	.13[c]	-.39[ab]	-.50[a]	6.10[***]	.29
group	.51[b]	.13[b]	-.42[a]	-1.17[a]	13.51[***]	.45
rejection						
individual	.00	.12	.53	.59	3.52[*]	.22
relationship	.02[a]	.80[b]	.44[ab]	.69[b]	4.35[**]	.25
group	-.44[a]	.48[b]	.45[b]	2.21[c]	20.80[***]	.53
is a friend						
individual	.21[b]	-.01[ab]	-.46[a]	-.36[a]	6.36[***]	.29
relationship	.02[b]	.02[b]	-.31[ab]	-.50[a]	4.26[**]	.24
group	.42[b]	.13[b]	-.41[a]	-.91[a]	10.57[***]	.40
Antisocial Behavior						
individual	.12[a]	.81[b]	.39[ab]	.56[ab]	3.01[*]	.21
relationship	.09[a]	1.43[b]	.03[a]	.87[b]	16.72[***]	.44
group	-.29[a]	1.38[b]	-.08[a]	1.90[b]	35.89[***]	.63
Prosocial Behavior						
individual					2.58ns	.19
relationship					1.54ns	.15
group	.18[b]	.03[ab]	-.34[ab]	-.81[a]	4.59[**]	.28
Shyness/Withdrawal						
individual	-.28[a]	-.34[a]	.37[b]	.00[ab]	4.97[**]	.26
relationship					.78ns	.11
group	-.20[a]	-.08[ab]	.40[b]	.41[ab]	3.77[*]	.26

Note. [1]: Correlation ratio ("èta"); [2]: If two subgroups in a row have no superscript in common, then a significant ($p < .05$) pairwise difference was found between these two subgroups; [3]: * $p < .05$, ** $p < .01$, *** $p < .001$, ns: not significant.

problems due to extremely varying numbers of cases in conditions and configurations. In this section we describe an attempt to approach this ideal design. First, we left out the category of bully/victims, thereby reducing the number of conditions per independent variable to 3, and the number of cells (configurations) in the analysis to (3*3*3 =) 27. Second, we reduced the number of children per cell to 10, using random selection of children per configuration. Third, we added children to cells with less than 10 children. These "added children" had a configuration that was the same as the cell to which they were added, except for one or two levels, in which the cell required a bully or a victim classification for that level, and the added children were classified as a bully/victim. This was done for 8 of the 27 cells. Their configurations, and (between brackets) added number of random selected children from other configurations were respectively: N-V-B (3 from N-C-B), B-N-V (7 from C-N-V), B-B-V (1 from C-B-V, 1 from C-C-V), B-V-N (1 from B-C-N, 4 from C-V-N), B-V-B (4 from B-C-B, 3 from C-V-B), V-B-N (4 from C-B-N, 1 from V-C-N), V-B-V (2 from V-B-C, 4 from V-C-V), V-V-B (1 from V-V-C, 3 from V-C-B). In this way 39 children were added to this subsample. The rationale for selecting these children was the general, thought not systematic, absence of significant pairwise differences between bully/victims with bullies or victims on the univariate tests. With these three design adaptations we were able to execute three way ANOVA's in a sample of 266 children (cell B-B-V still lacked 4 cases), that resembled all possible combinations of bullies, victims, and noninvolved children, measured on all three levels of our model.

As 10 dependent variables we used the same constructs as reported in the previous two parts of the result section. Table 6.5 gives a summary of these 10 three-way ANOVA's; each row represents a single ANOVA, and its dependent variable is described in the first column. Results are given in the form of effect-sizes, separately for each main effect (columns 2, 3 and 4) and interactions (columns 5 to 8). Effect sizes are expressed as *squared* correlation ratios (η^2). Such a ratio may be considered as the proportion of variance explained by the effect. Together with the proportion of unexplained variance (residue, column 9), these ratios in each row add up to 1.00. An asterisk denotes a significant ($p < .05$) result on the corresponding though not reported F-tests. The most right column presents the absolute total amount of variance. Together with the lowest row in the table, that presents the degrees of freedom for each effect, this information may be used to reconstruct sums of squares, mean squares and F-ratios, that are not reported here.

The most salient effect reported in this table was found on Antisocial Behavior, broken down on the group level. This effect size is .30, the corresponding correlation ratio is .55. In other words, the strongest difference on bullies, victims and noninvolved children is found on Antisocial Behavior, when the classification is based on peer-reported reputations in class. Other strong effects were found on victimization and bullying other students, but these effects are less salient because these constructs are by definition strongly related to the independent variable. The average effect sizes for the three main effects are .10, .03, and .07, for the individual, relationships and

TABLE 6.5

Summary Overview of Results of Ten Three-way ANOVA's

CONSTRUCT	MAIN EFFECTS[1]			INTERACTIONS[1]				Residue[1]	Total Sum of Squares
	I	R	G	I*R	I*G	R*G	I*R*G		
victimization	.33***	.01ns	.02*	.02ns	.01ns	.02ns	.06**	.54	130
social isolation	.16***	.03**	.03**	.05**	.01ns	.00ns	.03ns	.68	95
bullying other students	.35***	.03**	.03**	.00ns	.02ns	.01ns	.03ns	.53	117
depressive symptoms	.03**	.03*	.00ns	.01ns	.02ns	.01ns	.08**	.83	17677
acceptance	.05**	.03**	.07***	.02ns	.03ns	.01ns	.03ns	.76	243
rejection	.01ns	.02*	.15***	.01ns	.02ns	.02ns	.03ns	.74	353
is a friend	.05***	.02 ns	.06***	.03ns	.01ns	.01ns	.01ns	.81	199
Antisocial Behavior	.01ns	.07***	.30***	.01ns	.01ns	.01ns	.01ns	.59	298
Prosocial Behavior	.01ns	.04**	.05**	.03ns	.03ns	.01ns	.02ns	.81	179
Shyness/Withdrawal	.03*	.00ns	.02ns	.01ns	.00ns	.02ns	.03ns	.87	264
degrees of freedom	2	2	2	4	4	4	8	239	265

Note. I: Individual level, R: Relationship Level, G: Group Level; [1]: Correlation ratio ("èta"), i.e. proportion of total sum of squares; * $p < .05$, ** $p < .01$, *** $p < .001$, ns: not significant.

group level. The corresponding correlation ratios are .32, .17, and .27, respectively. It appears that on the average, the individual level has the strongest unique explaining power, and the relationship level the weakest. This result is similar to the one-way ANOVA's described above. More important is the fact that these three-way ANOVA's show that each level (each independent variable) of the model has a unique explaining power, that is independent of the other two levels of the model. This is strong support for the validity of the model.

We found only 3 of 40 possible interactions to be significant. This number is remarkably low. It suggests that in general the three levels of the model do not interfere (strengthen, weaken) with each other. It is also possible that interaction effects were suppressed because of the design adaptations we had to use.

DIFFERENCES BETWEEN TYPES AND ANTITYPES.

In Table 6.2 we reported about the occurrence of "bullying involvement Types" and "bullying involvement Antitypes", children with a configuration of bullying involvement categorizations that occurred more or less frequently than expected by chance. In this section we will describe characteristics of the 8 main Types and Antitypes. These 8 main subgroups are those subgroups that were identified as either a Type or an Antitype in both boys, and in girls, and were represented in our sample with at least 10 children. Using a series of 10 one-way ANOVA's, followed by Scheffé pairwise comparison tests, we compared these subgroups with each other. As only independent variable we used the Type/Antitype classification, that had 8 conditions. Per condition we selected 15 children at random, so the total number of subjects in these ANOVA's was 120. As dependent variables we used the same 10 constructs as reported in Tables 6.3 to 6.5. We found significant differences on all dependent variables, a result that is perfectly in line with the results presented above. On three constructs we found no pairwise contrast on any combination of two conditions. These constructs were rejection, is a friend, and Shyness/Withdrawal. Apparently, the Types and Antitypes in these analyses are not characterized specificly enough on these constructs. Below, we summarize the results of the Scheffé comparison tests by describing the eight Types and Antitypes one by one. We reported a characteristic if the described subgroup differed significantly with at least one other subgroup. In these descriptions the use of the qualifications "high" and "low" is always relative to this special (not aselect) subsample.

The first group is a Type and has as configuration N-N-N. These children are classified as noninvolved on all three levels of the model. On the average, these children score low on self-reported victimization, social isolation, bullying other students, depressive symptoms, and on peer-reported Antisocial Behavior. Furthermore, these children score high on peer-reported acceptance and Prosocial Behavior.

The second group is a Type and has as configuration N-B-B. These children are involved in bullying relationships as a bully and have the reputation to be a bully, but do not describe themselves as a bully. They score low on self-reported victimization,

social isolation and bullying other students. They score high on peer-reported Antisocial Behavior. One may speculate that these children tend to deny their personal bullying involvement, but it is also possible that these children are unaware of the negative impact of their behavior on other children.

The third group is the only Antitype and has as configuration N-V-N. These children are involved in bullying relationships as a victim, but do not have this reputation and also do not describe themselves as a victim. They score low on self-reported victimization, social isolation, and bullying other students, and on peer-reported Antisocial Behavior.

The fourth group is a Type and has as configuration N-V-V. These children are involved in bullying relationships as a victim, and also have this reputation, but do not describe themselves as a victim. They score low on self-reported victimization and bullying other students, and on peer-reported Antisocial Behavior and Prosocial Behavior.

The fifth group is a Type and has as configuration B-B-B. These children are classified as bullies on all three levels of the model. They score low on self-reported victimization and social isolation. They score high on self-reported bullying other students, and on peer-reported acceptance and Antisocial Behavior.

The sixth group is a Type and has as configuration V-V-V. These children are classified as victims on all three levels of the model. They score high on self-reported victimization, social isolation and depressive symptoms. They also score low on self-reported bullying other students and peer-reported Antisocial Behavior.

The seventh group is a Type and has as configuration C-B-B. These children are involved in bullying relationships as a bully and have the reputation to be a bully, but describe themselves both as a bully and as a victim. They score high on self-reported victimization, bullying other students, depressive symptoms, and on peer-reported Antisocial Behavior.

Finally, the eighth group is a Type and has as configuration C-V-V. These children are involved in bullying relationships as a victim and have the reputation to be a victim, but describe themselves both as a bully and as a victim. They score high on self-reported victimization, social isolation and bullying other students. They score low on peer-reported acceptance, Antisocial Behavior and Prosocial Behavior.

In total 57 of 280 Scheffé tests revealed a significant ($p < .05$) pairwise difference, which is roughly four times as much as might be expected by chance. All Types and Antitypes described above differed significantly from at least four other Types or Antitypes.

PERSONALITY DIFFERENCES IN THE LONGITUDINAL SAMPLE
Previous sections reported about children in the cross-sectional sample. In this section, differences between categories of children in the longitudinal sample on simultaneous (Wave 3) and earlier (Wave 1 and 2) personality characteristics are explored.

These personality differences between bullying involvement subgroups on the three levels were tested using 45 one-way ANOVA's, followed by Scheffé tests for pairwise comparisons. As three independent variables we used the three bullying involvement classifications, referring to the three levels of our model. We included all four subgroups of these classifications (bullies, victims, bully/victims, noninvolved children) in these analyses. As 15 dependent variables we used five factor model personality scales, measured at the same time as bullying involvement (Wave 3), or four years (Wave 2), or five years (Wave 1) earlier. In other words, we completed nine ANOVA's (three waves times three different independent variables) for each personality factor scale. We also considered to use three-way ANOVA's in order to test simultaneous effects of the three independent variables, and their interactions, but decided not to execute these tests for several reasons. Most cells for a three-way ANOVA were filled with too low numbers of cases: We found 34 of 64 cells (possible combinations of classifications) to contain no cases at all, and only 5 of 64 cells containing more than 10 cases. Furthermore, the number of cases available was further reduced because of missing values on the dependent variables. Available and usable numbers of personality descriptions in Wave 1, 2 and 3 were 122, 100, and 159, respectively.

The bullying involvement status of 13 boys in the longitudinal sample could not be identified because of missing data, usually due to unanswered bullying involvement self-reports. The remaining 177 boys were distributed as follows: a) On the individual level: 121 boys noninvolved (64 %), 19 bullies (10 %), 20 victims (11 %) and 17 bully/victims (9 %); b) On the relationship level: 91 boys noninvolved (48 %), 49 bullies (26 %), 29 victims (15 %) and 8 bully/victims (4 %); c) On the group level: 69 boys noninvolved (36 %), 71 bullies (37 %), 35 victims (18 %) and 2 bully/victims (1 %).

In general, personality factors discriminated only weakly between subgroups: In 12 of the 45 ANOVA's we found significant ($p < .05$) effects. The strongest discriminating factor was Agreeableness, with 7 out of 9 ANOVA's significant on the three Wave 1 and the three Wave 3 tests, and the Wave 2 test with the individual level as independent variable. In Conscientiousness, 3 out of 9 ANOVA's were significant, all with the Wave 3 measure as dependent variable. Both in Extraversion and in Emotional Stability, only one ANOVA was significant, both on Wave 3, with the group level as independent variable. We never found an ANOVA significant on Openness to Experience. The correlation-ratio èta illustrates the strength of the relation between personality and bullying involvement, and the differences between personality factors in this relation. Averaged over 3 waves and 3 independent variables (bullying involvement levels), this ratio was .20 for Extraversion, .30 for Agreeableness, .22 for Conscientiousness, .20 for Emotional Stability, and .15 for Openness to Experience.

Post hoc Scheffé tests showed that differences on personality scales between subgroups are very weak in pairwise comparisons: Nine out of 270 comparisons showed a significant ($p < .05$) difference. Noninvolved boys were distinguished the least weak (with 8 out of 135 comparisons significant, four times in comparison with

victims, three times with bullies, and only once with bully/victims), these noninvolved children always had higher scores. Bullies and victims differed only once from each other: on Wave 3 Extraversion, with the group level as independent variable. Bullies scored high, victims scored low.

To get an idea about the nature of the differences between subgroups, we averaged the available measures per child over waves. Below we describe trends in the differences between subgroup means on these averaged personality scale scores, although pairwise differences were often found to be statistically not significant. On Extraversion, bullies tend to have the highest scores, but their scores were almost the same as for noninvolved children and victims. Bully/victims had lowest scores on the individual level, but this was not found when comparing subgroups on the relationship and group level. On Agreeableness, noninvolved children had highest scores, the scores of bullies, victims and bully/victims were more or less the same. In other words, children that are involved in bullying always had lowest scores on Agreeableness, regardless their specific position and the model level that was tested. On Conscientiousness, the same pattern was found as in Agreeableness: Noninvolved children had highest scores, the scores of bullies, victims and bully/victims were more or less the same. On Emotional Stability, bullies had highest scores, but their scores were almost the same as for noninvolved children. Victims, and bully/victims on the individual level had lowest scores. Bully/victims on the relationship and group level had scores that were comparable with bullies and noninvolved children. On Openness to Experience, the differences between subgroups were small and inconsistent.

The three independent variables (i.e. the three levels of the model) appear to have about the same correlation ratios with personality, if these ratios are averaged over personality scales and measurement waves. For the individual, relationship and group level, we found mean èta values of .23, .20 and .20, respectively. But in Wave 3 the group level showed significant results on four of the five Wave 3 personality measures. Only on Openness to Experience there was no effect.

The three measurement waves appear to have about the same correlation ratios with personality, if these ratios are averaged over personality scales and levels of the model. For Wave 1, 2, and 3 we found mean èta values of .20, .21 and .23, respectively.

Taken together, personality variables discriminate weakly between bullying involvement subgroups. Agreeableness appears to give the clearest effects and is also the only personality factor that has longitudinal predictive power: Wave 1 Agreeableness discriminated between Wave 3 bullying involvement subgroups. The three levels of the model appear to be equally weak, though significantly, related to personality.

DISCUSSION

In this study we proposed a three-level model for the description of bullying and victimization phenomena in middle childhood, in which we distinguished between an individual level, a relationship level, and a group level. We explored this model in three ways. First, we described the prevalence of different bullying affected relationships in school classes. Second, we described the prevalence of the four categories of children (bullies, victims, bully/victims, and noninvolved children) at each of the three levels of our model as well as at their combinations. Third, we described and tested differences between the four categories of children at each of the three levels on a series of behavioral and adjustment characteristics.

We demonstrated that children can be categorized meaningfully, but also in different ways, based on this model. We found both substantial difference and substantial correspondence between the categorizations on these three levels. We found that classification at the three levels of the model explained unique and substantial amounts of variance in self-reported bullying involvement scales and depressive symptoms, peer-reported attractiveness measures and behavioral orientation factors, and adult-reported personality scales, the latter in a longitudinal perspective. Using the three-level model, we found several special categories of children, so called Types and Antitypes. We found that Types and Antitypes differed on several constructs mentioned above. Together, these findings demonstrate the psychological significance and relevance of the three-level model for bullying and victimization phenomena. Additionally, this study provides support for the conceptual framework by Pierce and Cohen (1995) for understanding children's aggressor-victim relationships.

The main innovative aspect of this study is the explicit empirical distinction between relationship aspects and group aspects of bullying involvement. These two aspects have been distinguished earlier in peer relations research (cf. Bukowski & Hoza, 1989), but in bullying research they have not yet been contrasted empirically as sharply as in this study. Findings from this study suggest that group reputation effects on bullying and victimization should not be understood as just the combination of relationship effects. Another innovative aspect of this chapter is the study of aversive peer relationships. This direction was suggested by Hartup (personal communication, 1995) and may be a useful extension of the field of dyadic peer relationships research, that until now especially focussed on supportive dyadic relationships (e.g., friendships). Here, it is worthwhile to point to a remarkable general distinction in research topics on this field of research: at the relationship level the study of peer relations has especially focussed on prosocial issues while at the group level the study of peer phenomena especially focussed on antisocial issues.

The three-level model should be regarded as a heuristic device: a tool for researchers of peer relationships that may be used to systematically study these

phenomena. For example, the three-level model itself does not explain the origins of bullying and victimization phenomena. But, as we demonstrated in the introduction, the model may be used to develop theoretical notions about these origins. Here, we repeat that in our view, bullying and victimization originate in both stable and more temporary individual differences, and in coincidental interactions and group events, that influence the development of relationships and group reputation. These developments may be reinforced or inhibited by child rearing practices (e.g. the explicit stimulation by parents to use reactive aggression if a child is bullied), or (the lack of) group management strategies of school staff. In other words, individual, relationship, and reputational differences may be the result of developmental patterns of these relationships and reputations themselves, and not only the result of differential developmental patterns of individual children.

Further research with the three-level model of bullying involvement requires the development of assessment techniques that differentiate more accurately between levels of the model, than the methods used in this study. For example, we used the same sociometric questions for both the relationship and the group level. In further research peer report questionnaires should explicitly discriminate between relationship and reputation aspects. Also, in self report questionnaires children might be asked to report explicitly about their self perceived aversive relationships and bullying reputation.

Results in his study are based on a rather rough fourfold distinction between bullying involvement categories of children. We found substantial frequency differences between the three levels for these four categories. For example, the rounded percentages of noninvolved children on the individual, relationship, and group level were 71, 65 and 56, respectively, which seems to suggest that there is more bullying in school classes going on than children report about themselves. Such a conclusion is disputable because the three levels are assumed to three different though associated aspects of bullying involvement, therefore these percentages are not completely comparable. Additionally, although classification at each level is based on well defined decision rules, the boundaries between categories are based on rather arbitrary cut off points. Despite these limitations we want to point to some trends: The rounded percentages of bullies and victims increase from the individual level, via the relationship level to the group level (bullies: 10, 16, 21 %; victims: 14, 16, 22 %). The increase of the percentages in bullies was more or less expected, that in victims was not. In bully/victims the trend is the other way around: 5, 3, and 1 % for the individual, relationship, and group level, respectively. The category is clearly relevant on the individual level: children do describe themselves as such. But on the relationship and group level this category appears to be less relevant. In other words, children use this category for themselves but not for their peers. The Type/Antitype approach from the configural frequency analysis used in this study may be an alternative for the fourfold distinction. Research on the long term stability of these Types and Antitypes is needed to decide about their usefulness.

In this study we ignored differences in the way children bully each other or are victimized, but the behavioral arsenal for children to let their peers lead a dog's life contains various kinds of weapons (cf. Rivers & Smith, 1994). It might be hypothesized that different Types or Antitypes of bullying children use different kinds of bullying behaviors. Furthermore it might be hypothesized that different Types or Antitypes of victims are vulnerable to different kinds of bullying behaviors. In this study we found some Types and Antitypes that are exclusive for boys or for girls. This gender effect may coincide with gender differences in aggressive behavioral styles (cf. Crick & Grotpeter, 1995, 1996; Lagerspetz, Björkvist & Peltonen, 1988).

In the empirical part of this study, the construct "social context" was operationalized in a rather restrictive way: only within-group reputational effects were studied. Further research may highlight the importance of between group differences, such as youth culture variations in the use of violence (cf. Janssen, 1995), but also of other within group aspects of social context that were not studied, such as the effects of special subgroups (cliques) in school classes. Other within group influences that might need consideration are differences in parent and teacher behavior towards group members. These topics have often received serious scientific attention, but not yet in relation to the specific levels of the three-level model.

Personality differences between boys in bullying involved subgroups were found in this study, although effects were rather weak. Our findings may be compared with results reported by Slee and Rigby (1993), who looked for relations between personality, using the Eysenck's personality factors, and self and teacher reported bullying involvement. They found bullies to score relatively high on Eysenck's Psychoticism factor. This personality factor is sometimes (Goldberg & Rosolack, 1994) regarded as a combination of Agreeableness and Conscientiousness, factors II and III of the five factor model. We also found effects on Agreeableness for concurrent and earlier measurements, and effects for Conscientiousness for simultaneous measures only. Slee and Rigby (1993) found victims to score relatively low on Eysenck's Extraversion factor. This personality factor is sometimes (Goldberg & Rosolack, 1994) regarded to resemble the factor I with the same name in the five factor model. We also found differences on Extraversion, but only on the group level (Wave 3 only). Slee and Rigby (1993) expected to find a relation between being victimized and Eysenck's Neuroticism factor, but they did not find this relation. Eysenck's Neuroticism factor is sometimes (Goldberg & Rosolack, 1994) regarded to resemble Emotional Stability, factor IV of the five factor model. We found no differences on Emotional Stability on the individual level, but we did find effects on the group level for this factor (Wave 3 only). In sum, our study supports the findings of Slee and Rigby (1993) of personality differences between different categories of bullying involved children. Result differences between these two studies illustrate the importance of the way these different categories of bullying involved children are defined and measured.

Bullying intervention strategies have often used a multi-track approach: Various kinds of activities are organized to influence various aspects of functioning (moral

values, social goals, social skills, social cognitions, actual behavior and so on) of various categories of involved persons (bullies, victims, bystanders, parents, teachers). Robust intervention studies (Olweus, 1991; Smith & Sharp, 1994) have shown the effectiveness of this multi-track approach. The three-level model might be considered as post hoc theoretical support for this approach. Additionally, and based on the model, we suggest to spend extra attention to explicit intervention in aversive dyadic peer relationships in school classes. We found genuine bully-victim relationships to be relatively scarce. Nevertheless, especially these relationships might have serious long term harmful effects for both the victim and the bully. Teachers might intervene in such pathological bully-victim relationships with simultaneous and mutually adjusted counselling of both the bully and the victim, explicitly focussed on their interaction styles.

GENERAL DISCUSSION

In this final chapter, I discuss the results of the empirical studies described in this dissertation within the context of the conceptual framework presented in chapter 1. In this conceptual framework, I distinguished between three elementary social structures in school classes: *Individuals, relationships,* and *groups*. Within each of these social structures, I distinguished between *attributes* and *processes*. Attributes of social structures were of main interest in this dissertation. I divided them further in two subcategories: *Characteristics* of social structures and *Orientations* of classmates who participate in these social structures. These distinctions resulted in six sets of attributes of social structures. They are described in Figure 7.1, which is a fragment of Figure 1.1. Based on these distinctions, two general research questions were addressed in this dissertation: 1) How are sets of attributes of social structures organized within cells? 2) How are sets of attributes from different cells related to each other? Below, I will discuss these two research questions, using the results of the four empirical studies described in this dissertation. In the first paragraph, I evaluate the attribute sets used that represent social structures as well as the internal organization of these attribute sets within social structures. In the second paragraph, I evaluate relationships between attribute sets from different social structures.

ATTRIBUTE SETS OF SOCIAL STRUCTURES AND THEIR ORGANIZATION

Several different sets of attributes of classmates were chosen to represent different parts of the conceptual framework. Global labels of these sets (denoted with "•") are presented in the cells of rows C and D in Figure 7.1, below the general description of the cell content. The data collection procedures for these attribute sets were extensively described in chapter 2. Below, I will first present a summary overview of these attribute sets, organized in terms of the conceptual framework and accompanied by some evaluative comments. Second, I will discuss the first general research question: How are sets of attributes of social structures organized within cells of the conceptual framework? Third, I will discuss some general considerations about attribute sets of social structures and their organization.

OVERVIEW OF ATTRIBUTE SETS USED IN THIS DISSERTATION

In this summary overview the cells of the conceptual framework (see Figure 7.1) are subsequently discussed, together with the attribute sets that belong in it.

Attributes of the individual social structure (cells C1 and D1)

Three sets of attributes were used to represent these cells. The first set concerned the Five Factor Model for personality, which was assumed to refer primarily to person characteristics (cell C1) or orientations (cell D1), and is used in chapters 3, 4, and 6. Two other sets of attributes used for cells C1 and D1 refer to specific content domains: Depressive symptoms (chapters 5 and 6) and bullying involvement (chapter 6).

The Five Factor Model. The Five Factor approach to description of personality has become widely spread in recent years (Goldberg, 1993), although this approach also received severe criticism (cf. Block, 1995; Pervin, 1994; see Kohnstamm (1992) and Kohnstamm and Van Lieshout (1992) for an overview of research in the Netherlands, focussed on person descriptions in childhood and adolescence). In chapter 3 the development of a method was described to measure and organize personality descriptions of individual classmates in terms of the Five Factor Model. Person descriptions were collected with the Nijmegen California Kinder Sorteertechniek (NCKS; Van Lieshout, Riksen-Walraven, Ten Brink, Siebenheller, Koot, Mey, Janssen, & Cillessen, 1986). This Q-sort is the Dutch translation and adaptation of the California Child Q-set (CCQ) by Block and Block (1980). The method used in this chapter resulted in the construction of scales that represented the Five Factor model reasonably well, though not perfectly. Most support was found for the Big Five factors Agreeableness (Factor II), Emotional Stability (Factor IV), Extraversion (Factor I), and Conscientiousness (Factor III). The content of the factor Openness (Factor V) changed over age and differed for boys and girls. We also reported elsewhere about this approach (Van Lieshout & Haselager, 1992). Recently, Robins, John, and Caspi (1994), and John, Caspi, Robins, Moffitt, and Stouthamer-Loeber (1994) reported similar factor solutions in comparable samples, using the same CCQ. Taken together, these studies provide support for the claim that Big Five factors may be measured using the CCQ, or its Dutch equivalent, the NCKS. Therefore, this method was also used in further studies, reported in chapters 4 and 6.

Depressive symptoms. Attributes related to childhood depression were measured using a subset of the Depression Inventory for Children (DVK; De Wit, 1985, 1987). In chapter 2, I reported psychometric properties of this instrument that were comparable to those in the samples used for the development of this instrument. Furthermore, in several studies that used data of our project, evidence for the validity of this instrument was found. Helsen (1993) found children with friends in class to have less depressive symptoms than children without friends in class. Ter Beek (1993) found children with a sociometric rejected status to have more depressive symptoms than nonrejected children. Van Koeverden (1993) found victims of bullying to have more depressive symptoms than nonvictims.

FIGURE 7.1

A Fragment of the Conceptual Framework:

Attributes of Social Structures of Classmates

A–	SOCIAL STRUCTURE		
	-1 individual	-2 relationship	-3 group
C– attributes of the structure	**C1** person characteristics • personality • bullying involvement • depressive symptoms	**C2** relationship characteristics • similarity • friendship • animosity/hostility	**C3** group characteristics
D– attributes of a classmate in the structure	**D1** person orientations • personality • bullying involvement • depressive symptoms	**D2** persistent interactive orientations • friendship status • bullying involvement status	**D3** persistent group orientations • behavioral style • sociometric status • bullying involvement status

Bullying involvement. Attributes related to bullying and victimization were measured using the bully/victim inventory developed by Olweus (1989). In chapter 2 several scales recommended by Olweus (1989) were described. These scales were used in chapter 6. The scales "Exposure to Direct Bullying/Victimisation" and "Bullying Other Students" had acceptable internal consistency measures. Other scales (Exposure to Indirect Bullying/Social Isolation; Negative Attitude to Bullying; Bullying the Teacher) had internal consistency measures that should be considered as too low. This partly may be caused because the items of these scales do not uniquely or not clearly refer to only one social structure of the conceptual framework (see below). In addition, in chapter 6 I used a bullying involvement classification of classmates based on only two items of this questionnaire.

Attributes of relationships (cell C2)

Three relationship characteristics were studied in this dissertation: Similarity, friendship (chapter 5), and bullying involvement (chapter 6). Although these attributes are characteristics of relationships, they have in common that they were derived from attributes that originally belonged to individual classmates. Pairwise combination of individual attributes revealed information that was not available in individuals. Three general methods to combine individual attributes into relationships attributes were used: 1) An Euclidean distance approach (chapter 5), to operationalize the similarity of attributes of partners in relationships; 2) An agreement approach (chapter 5), using a new application of Cohen's Kappa (Cohen, 1968), to operationalize the similarity of the perception by two relationship partners of attributes of other classmates; 3) A nominal typology approach, to identify the nature of a relationship with regard to friendship (chapter 5) or bullying involvement (chapter 6), the latter is described in Figure 7.1 as "animosity/hostility". Relationships were classified, based on dichotomous attributes of the participants in the relationship, that were rated by the partner in the relationship. The elementary information for these relationship typologies was gathered with sociometric questions.

Attributes of classmates in relationships (cell D2)

I used and studied two persistent interactive orientations: Friendship status (chapter 5) and bullying involvement status (chapter 6). Both attributes of classmates in a relationship were derived from relationship characteristics. For example, to determine whether a child was a bully in a bully-victim relationship, the nature of this relationship had to be determined first. In other words, the persistent interactive orientations and relationships characteristics studied in this dissertation where interconnected with each other.

Attributes of classmates in groups (cell D3)

For this cell of persistent group orientations of classmates, I studied three sets of attributes: a three-factor organizational system for classmates behavior style (chapter 6), a two-dimensional organizational system for peer sociometric status (chapters 4, 5, and 6), and bullying involvement status. Elementary information for all three sets of attributes was collected using sociometric techniques, in which all children in class

evaluated each other on a series of constructs. Afterwards, evaluations *given* by classmates of each other, were aggregated and restored as *received* evaluations.

Behavior style in class. This attribute set was based on principal component analysis of six sociometric questions on classroom behavior, that revealed three dimensions of classroom social behavior: Antisocial Behavior, Prosocial Behavior, and Social Withdrawal Behavior. Mooij (1991) found a similar factor structure while using the same twelve sociometric questions as in our project, but in a different though comparable sample. Masten, Morison, and Pellegrini (1985) found a similar factor structure in a sample of North American 3rd to 6th graders, while using the revised class play method. Apparently, this three-factor structure is a fairly robust indicator of the structure of children's behavioral tendencies in peer groups. The three dimensions found show close resemblance with three central behavioral orientations distinguished in a review by Hartup and Van Lieshout (1995).

Sociometric status. This attribute set was based on two sociometric questions referring to a child's acceptance (being liked) and rejection (being disliked) by classmates. This attribute set is fairly common in peer relations research (cf. Newcomb, Bukowski, & Pattee, 1993).

Bullying involvement status. This set of persistent group orientations of classmates was based on two sociometric questions on bullying and being bullied. In chapter 6, I used these questions to classify classmates in one of four types of bullying involvement.

ON THE ORGANIZATION OF ATTRIBUTES WITHIN SOCIAL STRUCTURES

The first general research question addressed in this dissertation was: "How are sets of attributes of social structures organized within cells of the conceptual framework?" This question refers to relations between different attributes within social structures. Throughout this dissertation this issue was addressed in several ways, sometimes explicitly, often implicitly. Here, I will only summarize some interesting findings.

Two groups of findings explicitly address this question. First, the Five Factor structure of personality, reported in chapter 3, described relations between attributes within the individual social structure (cells C1 and D1), and especially within the domain of personality. Second, the three factor structure of behavioral orientations in class, reported in chapters 2 and 6, described relations between attributes of classmates within the group social structure (cell D3). These two factor structures are not equivalent. Recently, Scholte, Van Aken, and Van Lieshout (1996) were able to confirm the Five Factor Model in a sample of 2001 adolescent self-descriptions, using a self-report questionnaire of 25 bipolar 7-point rating scales, but not in peer-nominations by classmates, of the same subjects on the same items. Instead, they found a different five factor structure, that made them suggest that "peers evaluate group members not in terms of personality but in terms of group reputation" (Scholte et al.,

1996). The study of Scholte et al. illustrates that different social structures may have different attribute organisations, which may be regarded as an additional argument to distinguish social structures.

Several other findings in this dissertation reveal information about relations between attributes within cells in a more implicit way. For example, the differences between several types of bullying-involved children, described in chapter 6, illustrate that bullying involvement at the individual level is related to depressive symptoms and personality (cells C1 & D1), and bullying involvement at the group level is related to sociometric status and behavioral style in class (cell D3). In chapter 5 relations between friendship and similarity were reported, referring to attributes of the relationships social structure (cell C2).

SOME GENERAL REMARKS ABOUT ATTRIBUTE SETS OF SOCIAL STRUCTURES

It may be evaluated how well the attribute sets used in this dissertation actually fit within and represent the conceptual framework. This evaluation may be done using criteria such as relevancy, comprehensiveness, uniqueness, economy, and others. Hardly any of the sets of attributes described above deserves such qualifications. Some cells of the conceptual framework were represented by only a few attributes, in other cells several, possibly overlapping, attribute sets were used. Furthermore, the location in the framework of some attribute sets described above may be disputed. For example, in chapter 6, I used self-reported bullying involvement as an attribute set in the individual social structure. This is a bit farfetched since bullying phenomena require by definition the presence or availability of at least one other person. For some part such inconsistencies may be solved by more adequate language use. In self-reports it would be more convenient to use a description like "considers oneself as a bully" as an indicator for a child's tendency to use systematic aggression, which may be regarded as a trait in the individual social structure. A description like "considers oneself as a victim" may be used as an indicator for a child's social vulnerability, which may be regarded as a trait in the individual social structure. Another weakness of the attribute set used is that the relations between sets within cells is not always made explicit. For several cells it is unknown whether attribute sets have some degree of organization, and how this organization may be. In sum, the attribute sets used in this dissertation are an imperfect operationalization to represent elements of the conceptual framework. Below, some practical and theoretical reasons for this imperfectness are discussed.

A first practical reason for this kind of problems is that the sets of attributes used in this dissertation were not selected to represent parts of the conceptual framework. They were originally chosen to serve the goals of the longitudinal project in which this dissertation was embedded (cf. Van Lieshout, 1991), and not to represent, or adequately operationalize, parts of the conceptual framework presented here. A

second practical reason is that the conceptual framework was developed post hoc, in order to reach a synthesis between the studies presented in this dissertation.

Several theoretical reasons for the imperfectness of the collection of attribute sets may be mentioned. A fundamental issue is the state of the art in this field of research. The existing body of knowledge may be considered too fragmented and incoherent to allow for the level of synthesis that was attempted to be reached when formulating the conceptual framework. Rubin, Bukowski and Parker (1996) wrote about this issue: *"The enormous complexity of the multiple, interrelated levels of social organisation that underpin peer experiences can make the prospect of understanding these experiences and their influence on children seem truly dim. Historically, distinctions between the various levels and perspectives of children's peer experiences often have been blurred* (p. 6)". Related to this issue is the tendency in this field of research to use traits of one social structure as an indicator for traits in another social structure. For example, sociometric status measures, here categorized as traits of a classmate within the group social structure (cell D3), may be used as indicators for social competence, a trait of a classmate within the individual social structure (cell D1). In general, there is a lack of a general, systematic, and comprehensive taxonomy for the attributes in the conceptual framework and its cells. Existing taxonomic systems, such as the Five Factor Model, usually have a realm that is limited to only parts of the conceptual framework.

Another issue is the measurement of attribute sets: naïve raters do not distinguish between cells of the conceptual framework, while reporting about classmates' psychosocial functioning. As a consequence, researchers need sophisticated methods to pinpoint to the precise meaning of raters' judgements: Do they refer to the general functioning of a rated classmate, to its functioning in specific (categories of) relationships, or to its functioning in specific (categories of) groups? Furthermore, such methods need to distinguish between effects that are determined by the rated social structure, effects that are determined by the rater itself, and effects determined by the interaction between rater and rated structure. One example of such methodology is the approach founded in the social relations model by Kenny and La Voie (1984). A finding in chapter 4 illustrates the need of more sophisticated methodology. The sociometric status measures Acceptance and Rejection were both, though in opposite directions, correlated with Agreeableness. Acceptance and Rejection scores were transformed into scores for Social Preference and Social Impact. Social Preference was correlated to Agreeableness, Social Impact was uncorrelated. Furthermore, Agreeableness, Acceptance, Rejection, and Social Preference showed substantial longitudinal stability, while Social Impact had no stability at all. This suggests that the transformation of Acceptance and Rejection to Social Impact and Social Preference actually leads to a distinction between a stable classmate trait in the individual social structure (cell D1) and an incidental classmate trait in the group social structure (cell D3).

Related to these measurement problems is the lack of knowledge about psychometric properties, such as reliability and validity, of attribute sets in the relationship

and group social structure. What is, for example, the reliability of the similarity measures used in chapter 5? Traditional psychometric approaches are not very well suited for this kind of measures.

HOW ARE SETS OF ATTRIBUTES FROM DIFFERENT CELLS RELATED TO EACH OTHER?

The second general research question of this dissertation concerned the study of relations between attributes from different cells, for example the relation between personality (cell D1) and peer sociometric status (cell D3). In this section, I will discuss this research question using the notion of "independence of social structures". This notion refers to the point of view that social structures operate and function mainly independent from super- and sub-ordinate social structures. As a consequence, social structures, within the context of elementary school classes, may each have their own organization principles. These principles are not necessarily determined by characteristics or orientations of embedded social structures. Furthermore, these principles do not necessarily determine characteristics or orientations of higher-order social structures.

The notion of "independence of social structures" is a post hoc idea, induced by a global evaluation of the results of the four empirical studies reported in this dissertation. Therefore, this notion was neither presented earlier as an hypothesis, nor formulated as an assumption. If, however, this notion is fully elaborated, then this implies for our conceptual framework: a) that characteristics or orientations of individual social structures neither fully determine, nor are fully determined by, relationships or groups, b) that characteristics or orientations of relationships neither fully determine, nor are fully determined by, individuals or groups, and c) that characteristics or orientations of group social structures neither fully determine, nor are fully determined by, individuals or relationships. As a consequence, relations between different social structures may be assumed to be generally weak or absent, although incidental relations may be meaningful. I will evaluate this "notion of independence of social structures", while describing and discussing the three dissertation chapters that explicitly addressed relations between attributes from different cells (chapters 4, 5, and 6).

THE RELATION BETWEEN PERSONALITY AND SOCIOMETRIC STATUS

In chapter 4, relations between personality, an attribute set of the individual social structure (cell D1), and sociometric status, an attribute set of the group social structure (cell D3), were in general found to be absent or rather weak. Two Big Five factors, Agreeableness and, to a lesser degree, Conscientiousness, correlated substantially with one sociometric status dimension, Social Preference. This pattern was found to be

more or less stable during the elementary school period. The other three Big Five factors, Extraversion, Emotional Stability, and Openness to Experience were in general uncorrelated with sociometric status measures. Social Impact, one other dimension of sociometric status, appeared to be uncorrelated with personality dimensions (Social Preference and Social Impact were transformations of the social status measures Acceptance and Rejection, that showed mixed results).

The absence of a relation between Extraversion and Social Impact is a good illustration of the independence of social structures. An obvious expectation would be that a child with a personality characterized by a high level of Extraversion will show high levels of extravert or outgoing behavior, and therefore will be very visible and have a heightened chance of being noticed by its classmates. But chapter 4 findings suggest that classmates are not impressed by extravert behavior styles: they do not heighten impact scores. Or children themselves may not be impressed by their reputations in class: they do not heighten extraversion scores. One might argue that the instruments used had insufficient psychometric qualities to reveal such relations. This is possible, though unlikely, since these instruments did reveal meaningful relations between other dimensions of personality and sociometric status.

THE RELATION BETWEEN PERSONALITY AND BULLYING INVOLVEMENT

In chapter 6, relations were studied between personality, an attribute set of the individual social structure (cell D1), and bullying involvement in all three social structures (cells D1, D2 and D3). Personality variables, especially Agreeableness and Conscientiousness, were found to discriminate weakly between bullying involvement subgroups. Agreeableness appeared to give the clearest effects and was also the only personality factor that has longitudinal predictive power: Wave 1 Agreeableness discriminated between Wave 3 bullying involvement subgroups. Again, we found hardly any effect on Extraversion, Emotional Stability, and Openness to Experience. The three levels of the model (corresponding to the three social structures of our conceptual framework) appeared to be equally weak, though significantly, related to personality.

In general, this group of results correspond with the findings of chapter 4, and support the notion of independence of social structures. Based on this notion, one might expect bullying involvement at the individual level to be more saliently correlated with personality variables, which was not found. In the previous section I already questioned the use of bullying involvement as an attribute set in the individual social structure. Actually, this problem is nicely illustrated by the finding that bullying involvement at the individual level does not reveal stronger associations with personality, another attribute set in the individual social structure, than bullying involvement at the relationship or group level.

THE RELATION BETWEEN SIMILARITY AND INDIVIDUAL OR GROUP CHARACTERISTICS

In chapter 5, it was reported that friends were more similar to one another than nonfriends, for a wide range of behavioral attributes, divided in two broad categories that roughly correspond to expression and perception of these attributes: For target children being rated by their classmates, and for classmates being rated by target children. Similarity between friends was greater in antisocial behavior than in the other domains. The main comparison in this chapter is made within cell C2 of Figure 7.1 (characteristics of the relationship social structure): A connection is made between similarity measures of relationships and the friend/nonfriend typology of relationships. Furthermore, one orientation of the individual social structure (D1) was included, namely gender, as well as one orientation of the group social structure (D3), namely sociometric status.

The general picture of the analyses on the similarity measures (see Tables 5.1 and 5.3) is that the strongest effects were found for within social structure comparisons, that is the relation between similarity and friendship status. The relations between similarity and gender or sociometric status were clearly less impressive, although incidental specific relations were found. One example is the relation between similarity of expressed antisocial behavior and gender: we found more similarity of antisocial behavior in female relationships than in male relationships. Since the within social structure relations (that is: relations within cell C2 in figure 7.1) were found to be much stronger than the between social structure relations (that is: relations with cells D1 or D3 in Figure 7.1) these findings again support the notion of independence of social structures. Additional support for this notion is the absence of significant numbers of interaction effects (between, friendship status, gender, and sociometric status) in the ANOVA's reported in chapter 5. In the 22 analyses described in Tables 5.1 and 5.3 we found only 10 out of 88 of 11 % possible interactions to be significant ($p < .05$). This percentage approximates a level that is usually expected to appear by chance. This suggests that the independent variables used in these analyses are also psychologically independent. Since they represent the three social structures of our conceptual framework, these findings support the notion of independence of social structures.

THE RELATION BETWEEN BULLYING INVOLVEMENT AND BEHAVIORAL ORIENTATIONS OR DEPRESSIVE SYMPTOMS

In chapter 6, three levels of bullying involvement were distinguished, that correspond with the three elementary social structures of the conceptual framework. It was demonstrated that children can be categorized meaningfully, but also in different

ways, based on this three-level-model. We found both substantial difference and substantial correspondence between the categorizations on these three levels.

The three levels of bullying involvement were related to characteristics in the individual social structure (cell D1) and the group social structure (cell D3). Findings in this chapter again support the notion of independence of social structures (cf. Table 6.5 for an overview). Characteristics in the individual social structure, such as social isolation and depressive symptoms, correlated the strongest with bullying involvement at the individual level, while characteristics in the group social structure, such as antisocial and prosocial behavior or acceptance and rejection, correlated the strongest with bullying involvement at the group level. An exception is the behavioral orientation towards shyness/withdrawal, that correlated the strongest with bullying involvement at the individual level. Table 6.5 also reports the relative absence of interaction effects between bullying involvement levels, a finding which supports their independence, and therefore also supports the notion of independence of social structures.

THE NOTION OF INDEPENDENCE OF SOCIAL STRUCTURES

In conclusion, many findings reported in this dissertation may be explained as supportive for the notion of independence of social structures. Nevertheless, for several of these findings alternative explanations may be formulated. One general alternative explanation for relatively strong within social structure relations in comparison with between social structure relations is methodological confoundedness: On several occasions relations found within social structures may be caused by the use of same instruments (e.g. sociometrics), or same raters (e.g. self reports), and so on. So the notion of independence of social structures will probably not be an easy defendable fortress. But the presence of alternative explanations for findings that are supportive for the notion of independence of social structures is by itself no reason to capitulate already: The best explanation still needs to be found.

The value and meaning of the notion of independence of social structures may become more clear if an opposite notion is formulated. Suppose that the three social structures of the conceptual framework were totally dependent on each other. In such a situation, correlations between social structures would be expected to be much higher, at least as high as within social structure correlations, and would even approach unity. Deviations from unity would then be attributed to measurement errors. The need to distinguish between social structures would actually be absent: It would be useless, since this distinction would not reveal different information. The most important logical consequence of the notion of total dependence is that processes within relationships and groups are assumed to be fully explainable from, or in other words, fully determined by, characteristics and processes of individual classmates. This is a difference with the independence notion, that allows for behavior of classmates, that is not determined by their individual characteristics.

Both notions are an attempt at an answer to questions about the nature of classmates' social environment: Is it enough to assume that social environment is just all relevant people (e.g. classmates) in the physical and temporal surroundings of a child, which is the consequence of the notion of total dependence of social structures? Or should we broaden this definition and accept that social environment is also constituted by characteristics of groupings of classmates, independently from the characteristics of these individual classmates? This dissertation may be cited in favour of this notion of independence of social structures.

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This dissertation aimed to contribute to the knowledge about the relation between social structures of classmates and their development, and especially to the meaning and importance of social structures for social and personality development during the elementary school period. Classmates may influence each other and may be influenced by each other. These transactional processes emerge within and between the social structures in which classmates are arranged, such as relationships and groups.

In this dissertation, four empirical studies were described. They represent rather different approaches in this research area; in several ways, though not systematically, they are connected to each other. To explain the relations between these four studies, a conceptual framework for social structures of classmates was described in *Chapter 1*. Three formal social structures were distinguished, the individual, the relationship and the group. Social structures may have numerous *attributes*, and all kinds of *processes* may take place within and between these structures. In this dissertation, attributes, not processes, of social structures and their relations, were investigated. Two broad categories of attributes were distinguished, attributes of the social structures themselves, and attributes of classmates that participate in these structures.

The studies reported in this dissertation were part of the longitudinal sociometric status project of the department of developmental psychology of the University of Nijmegen. In *Chapter 2* an extensive overview was presented of the project design and samples, as well as the constructs used in this dissertation. The project had a longitudinal cohort-sequential design: Two cohorts of boys from two school grade levels participated in three consecutive measurement waves conducted within a period of 5 years, that cover the entire elementary school-age period. The *longitudinal sample* consists of these two cohorts. Three different *cross-sectional samples* consist of the classmates of the boys in the longitudinal sample, for each measurement wave, respectively. Furthermore, the data collection procedure for the third measurement wave of the project was extensively described in this chapter.

Chapter 3 described a study on Big Five personality factors in Q-Sort descriptions of children and adolescents. Factor analysis of Nijmegen California Q-Set descriptions (NCCQ) by 1836 Dutch teachers and parents from 720 3-17 years old children and adolescents supported the five factor personality model. The five first factors closely

resembled but were not completely identical with the Big Five factors assessed in adult studies. Most support was found for the factors Agreeableness (Factor II), Emotional Stability (Factor IV), Extraversion (Factor I), and Conscientiousness (Factor III). The content of the factor Openness (Factor V) changed over age and differed for boys and girls. An additional child factor was found, called Motor Activity. In young children this factor contained items concerning motor and physical activity, impulse control, as well as concentrated, planful behavior. These sets of items were in later years related to Extraversion, Emotional Stability, and Conscientiousness, and specifically for girls with Openness. Two more additional factors, Dependency and Irritability, were found in some subsamples of NCCQ descriptions.

Chapter 4 concerned the development of the relation between personality and sociometric status in elementary school children. This relation was studied in a longitudinal sample of 190 predominantly Caucasian elementary school boys, using a correlational approach. Peer acceptance and rejection, social preference and impact, and Five Factor Model personality measures were collected at the beginning of elementary school, and 1 and 4 years later. Personality and its relations with sociometric status were stable during these intervals. Social preference was found to be the most stable sociometric status measure, having the strongest relations with Agreeableness and Conscientiousness, the two only personality measures that were substantially related to sociometric status.

Chapter 5 was a study on behavioral similarities between friends and nonfriends in middle childhood. Behavioral similarities were assessed between target children (mean age, 11.1 years) and friends and nonfriends, respectively. One target child of each sex (N = 192), along with one same-sex friend and one nonfriend, were selected from 102 participating classrooms. "Guess Who" nominations, obtained within these classrooms, were used to measure prosocial behavior, antisocial behavior, shyness/ dependency, and sociometric status; self-reports were used to measure depressive symptoms. Children and their friends were more similar to one another than nonfriends on almost all variables — as the subjects were rated by their classmates and as the subjecs rated their classmates. Similarity between friends was greater in antisocial behavior than in the other domains. Certain results suggest that friendship similarities vary from attribute to attribute, possibly as a function of normative salience, that is, the importance of an attribute for reference group membership and social reputation.

Chapter 6 reported about bullying involvement in middle childhood at three different levels: the individual, relationship, and group level. First, all children in a cross-sectional sample (N = 2324) were classified independently on each of the three levels in one of these four categories of bullying involvement: *bully, victim, bully/victim,* or *noninvolved.* Both substantial differences and agreement between these three classifications were found. Second, using configural frequency analyses, several types and antitypes of bullying-involved children were identified, that were characterized by specific combinations of categories from these three classifications.

Third, using analysis of variance, differences between categories of bullying involved children, as well as between several types and antitypes were found on self-reported victimization, social isolation, bullying other students, and depressive symptoms, as well as on peer reported acceptance, rejection, is a friend, antisocial behavior, prosocial behavior, and shyness/withdrawal. Fourth, in a longitudinal male subsample (n = 177), five-factor model personality variables, measures on three occasions during a 5 year period, were found to discriminate weakly between bullying involvement subgroups. Agreeableness appears to give the clearest effects and was also the only personality factor that has longitudinal predictive power: Wave 1 Agreeableness discriminated between Wave 3 bullying involvement subgroups. The three levels of the model appeared to be equally weak, though significantly, related to personality. Together, these findings further qualified the differences between subgroups of bullying involved children, and validated the main distinction between the three levels of bullying involvement.

In *Chapter 7*, the four empirical studies presented in chapters 3 to 6, were evaluated in terms of the conceptual framework described in Chapter 1. Personality, and especially the Big Five dimensions Agreeableness and Conscientiousness (belonging to the individual social structure) was found to be low to moderately related to sociometric status, and especially its social preference dimension (belonging to the group social structure). With regard to the analyses on the similarity measures of chapter 5, the general impression is that the strongest effects were found for *within*-social-structure comparisons, that is the relation between similarity and friendship status (both belonging to the relationships social structure). The relations *between* similarity and gender (belonging to the individual social structure) or sociometric status (belonging to the group social structure) were clearly less impressive, although incidental specific relations were found. Other characteristics in the individual social structure, such as self-reported social isolation and depressive symptoms, correlated the strongest with bullying involvement at the individual level, while characteristics in the group social structure, such as antisocial and prosocial behavior or acceptance and rejection, correlated the strongest with bullying involvement at the group level.

In general, relations between attributes of social structures were considered to be stronger within the same social structure, than between different social structures. Furthermore, in several analyses reported in subsequent chapters, remarkably little interactions were found between variables from different social structures. Together these findings lead to the concluding notion of relative independence of social structures of classmates in elementary schools.

D eze dissertatie beoogt bij te dragen aan de kennis van het verband tussen sociale structuren van klasgenoten en hun ontwikkeling, en met name aan de betekenis en het belang van sociale structuren voor de sociale en persoonlijkheidsontwikkeling in de basisschoolperiode. Klasgenoten kunnen elkaar beïnvloeden en door elkaar beïnvloed worden. Deze transactionele processen ontstaan binnen en tussen de sociale structuren waarin klasgenoten participeren, zoals relaties en groepen.

In deze dissertatie worden vier empirische studies beschreven. Ze vertegenwoordigen tamelijk verschillende benaderingen in dit wetenschapsgebied; op verschillende manieren, hoewel niet systematisch, zijn ze met elkaar verbonden. In *Hoofdstuk 1* wordt een conceptueel raamwerk voor sociale structuren van klasgenoten beschreven, waarmee de verbanden tussen en binnen deze vier studies kunnen worden geordend. Drie formele sociale structuren worden onderscheiden, het individu, de relatie, en de groep. Sociale structuren worden gekenmerkt door allerlei *attributen* (eigenschappen), en allerlei soorten van *processen* kunnen zich afspelen binnen en tussen deze structuren. In deze dissertatie worden attributen en geen processen bestudeerd. Twee brede categorieën van attributen worden onderscheiden, attributen van de sociale structuren zelf, en attributen van de klasgenoten die deel uit maken van deze structuren.

De vier studies, die in deze dissertatie worden gerapporteerd, zijn onderdeel van het longitudinale sociometrische status project van de vakgroep ontwikkelings-psychologie van de Katholieke Universiteit Nijmegen. In *Hoofdstuk 2* wordt een uitgebreid overzicht gepresenteerd van het design en de steekproeven van het project, alsmede van de constructen die in deze dissertatie worden gebruikt. Het project heeft een longitudinaal cohort sequentieel design: twee cohorten van jongens in twee niveaugroepen namen deel aan drie opeenvolgende meetronden die werden uitgevoerd gedurende een periode van vijf jaar. Dit design omvat de gehele basisschool periode. De longitudinale steekproef bestaat uit deze twee cohorten. Drie verschillende cross-sectionele steekproeven, voor elke meetronde één, bestaan uit de klasgenoten van de jongens in de longitudinale steekproef. In dit hoofdstuk wordt verder de procedure van dataverzameling van de derde meetronde uitgebreid beschreven.

Hoofdstuk 3 beschrijft een studie naar Big Five factoren in Q-sort beschrijvingen van kinderen en adolescenten. Factor Analyse van Nijmegen California Q-Set beschrijvingen (NCCQ) door 1836 Nederlandse leerkrachten en ouders van 720 kinderen en adolescenten tussen 3 en 17 jaar ondersteunde het vijf factoren model voor persoonlijkheid. De eerste vijf factoren benaderden de Big Five factoren, zoals die ook gevonden worden in studies bij volwassenen, hoewel deze factoren niet compleet identiek waren. De meeste ondersteuning werd gevonden voor de factoren Vriendelijkheid (Factor II), Emotionele Stabiliteit (Factor IV), Extraversie (Factor I) en Zorgvuldigheid (Factor III). De inhoud van de factor Openheid (Factor IV) veranderde over leeftijd en was in het algemeen verschillend voor meisjes en jongens. Er werd een extra kindfactor gevonden, die Motorische Activiteit werd genoemd. Bij de jongere kinderen bevatte deze factor items betreffende fysieke activiteit en impuls controle, alsmede geconcentreerd en planmatig gedrag. Deze groepen van items waren op oudere leeftijd gerelateerd aan Extraversie, Emotionele Stabiliteit en Zorgvuldigheid, en vooral bij meisjes aan Openheid. Twee andere extra factoren, Afhankelijkheid en Irriteerbaarheid, werden gevonden in bepaalde steekproeven van de NCCQ-beschrijvingen.

Hoofdstuk 4 gaat over de ontwikkeling van het verband tussen persoonlijkheid en sociometrische status bij basisschoolleerlingen. Dit verband wordt bestudeerd met een correlationele benadering in een longitudinale steekproef van 190 jongens. Acceptatie en verwerping door leeftijdgenoten, sociale preferentie en impact, en persoonlijkheidsmaten volgens het vijf factor model werden vastgesteld aan het begin van de basisschool en 1 en 4 jaar later. Persoonlijkheid en het verband ervan met sociometrische status waren stabiel over deze intervallen. Sociale preferentie was de meest stabiele maat voor sociometrische status, en van alle sociometrische statusmaten hield deze het sterkste verband met Vriendelijkheid en Zorgvuldigheid. Deze twee Big Five factoren waren de twee enige persoonlijkheidsmaten die substantieel gerelateerd waren aan sociometrische status.

Hoofdstuk 5 is een studie naar gedragsgelijkenis tussen vrienden en niet-vrienden aan het eind van de basisschool. Gelijkenis in gedrag wordt onderzocht tussen "doel-kinderen" (gemiddelde leeftijd 11.1 jaar) en hun vrienden en niet-vrienden. Uit 102 deelnemende klassen wordt één doel-kind van elk geslacht ($\underline{N}$ = 192) geselecteerd, tezamen met één vriend en één niet-vriend van hetzelfde geslacht. Sociometrische nominaties, verkregen binnen deze klassen, worden gebruikt om prosociaal gedrag, antisociaal gedrag, verlegenheid/afhankelijkheid en sociometrische status te meten; Zelf-rapportages worden gebruikt om symptomen van depressie te meten. Doel-kinderen en hun vrienden bleken meer gelijk aan elkaar dan doel-kinderen en hun niet-vrienden bij bijna alle variabelen — zowel wanneer doel-kinderen hun klasgenoten beoordeelden, als wanneer klasgenoten doel-kinderen beoordeelden. Gelijkenis tussen vrienden was groter in antisociaal gedrag dan in de andere domeinen. Sommige resultaten suggereren dat gelijkenis bij vriendschap varieert van attribuut tot attribuut, mogelijk als een functie van normatieve

opvallendheid, dat is het belang van een attribuut voor het lidmaatschap van referen-
tiegroepen en sociale reputatie.

Hoofdstuk 6 rapporteert over de betekenis van treiterverschijnselen in de hoogste
vier groepen van de basisschool. Hierbij worden drie niveaus van organisatie onder-
scheiden: het individuele -, het relatie - en het groeps-niveau. Allereerst worden alle
kinderen in een cross-sectionele steekproef ($\underline{N}$ = 2324) op elk van deze drie niveaus
ingedeeld in één van vier categorieën van betrokkenheid bij treiteren. Deze
categorieën waren: dader, slachtoffer, dader-én-slachtoffer, en niet betrokken. Hoewel
er veel samenhang tussen de indelingen op de drie niveaus was, bleken kinderen lang
niet altijd in de zelfde categorie ingedeeld te worden. Ten tweede worden door middel
van Configurele Frequentie Analyse verschillende typen en antitypen van bij treiteren
betrokken kinderen opgespoord. Deze kinderen werden gekenmerkt door speciale
combinaties van categorieën op deze drie indelingen. Ten derde werden met behulp
van variantie-analyse verschillen gevonden tussen daders, slachtoffers, dader-én-
slachtoffers, en niet betrokken kinderen, alsmede tussen diverse typen en antitypen.
Enkele voorbeelden: slachtoffers én dader-én-slachtoffers geven zelf aan dat ze meer
dan anderen getreiterd worden, en sociaal geïsoleerd zijn en hebben tegelijkertijd
meer dan anderen last van symptomen van depressie; klasgenoten vinden slachtoffers
én dader-én-slachtoffers minder vaak aardig en noemen hen minder vaak als vriend;
klasgenoten vinden slachtoffers ook vaker verlegen en teruggetrokken; daders geven
zelf aan dat ze vaker dan anderen treiteren; klasgenoten vinden dat daders vaker dan
anderen antisociaal gedrag vertonen. Ten vierde werden in een longitudinale deel-
steekproef ($\underline{N}$ = 177) enige verschillen tussen categorieën van bij treiteren betrokken
kinderen gevonden voor persoonlijkheidsvariabelen volgens het vijf factoren model,
gemeten in drie meetronden gedurende een periode van vijf jaar. De duidelijkste
effecten werden gevonden voor Vriendelijkheid, deze factor was ook de enige factor
met een longitudinaal onderscheidend vermogen: Vriendelijkheid, gemeten tijdens de
eerste meetronde, onderscheidde categorieën van bij treiteren betrokken kinderen
tijdens de derde meetronde. In het algemeen hadden kinderen die niet bij treiteren
betrokken waren de hoogste scores op Vriendelijkheid, terwijl er tussen daders,
slachtoffers en dader-én-slachtoffers onderling nauwelijks verschillen waren.
Betrokkenheid bij treiteren bleek op alle drie niveaus van het model even beperkt,
maar wel significant, gerelateerd te zijn aan persoonlijkheid. Tezamen illustreren deze
bevindingen de verschillen tussen categorieën van bij treiteren betrokken kinderen, en
valideren zij het onderscheid tussen de drie niveaus van betrokkenheid bij treiteren.

In *Hoofdstuk 7* worden de vier empirische studies van hoofdstuk 3 tot en met 6
geëvalueerd in termen van het conceptuele raamwerk van hoofdstuk 1.
Persoonlijkheid (behorend tot het individu als sociale structuur), was zwak tot matig
gerelateerd met sociometrische status (behorend tot de groep als sociale structuur).
Daarbij was de positieve samenhang van de persoonlijkheidsdimensies
Vriendelijkheid en Zorgvuldigheid met sociale preferentie het meest uitgesproken.
Zowel bij de analyses met gelijkenismaten (hoofdstuk 5) als bij het onderzoek van

betrokkenheid bij treiteren (hoofdstuk 6) was de algemene indruk dat de sterkste effecten werden gevonden bij vergelijkingen *binnen* sociale structuren. Effecten van vergelijkingen *tussen* sociale structuren waren duidelijk minder indrukwekkend, hoewel ze wel werden gevonden. Karakteristieken van het individu als sociale structuur, zoals zelf-gerapporteerde sociale isolatie en depressieve symptomen, waren bijvoorbeeld het sterkst gerelateerd aan zelf gerapporteerde betrokkenheid bij treiteren, terwijl karakteristieken binnen de groep als sociale structuur, zoals antisociaal gedrag en prosociaal gedrag en acceptatie en verwerping, het sterkst gerelateerd waren aan betrokkenheid bij treiteren zoals gerapporteerd door klasgenoten.

In het algemeen werden verbanden tussen attributen van sociale structuren sterker geacht binnen dezelfde sociale structuur, dan tussen verschillende sociale structuren. Verder werden in verscheidene analyses, gerapporteerd in de diverse hoofdstukken, opvallend weinig interacties gevonden tussen variabelen van verschillende sociale structuren. Tezamen leiden deze bevindingen tot de concluderende notie van relatieve onafhankelijkheid van sociale structuren van klasgenoten op basisscholen.

Gerbert Haselager, werd geboren op 19 maart 1956 te Kortenhoef. Hij behaalde in 1975 het Atheneum B diploma aan het Alberdinck Thijm College te Hilversum. Daarna studeerde hij logopedie in Utrecht en werkte twee jaar als logopedist op kinderrevalidatiecentrum Vogelweyde te Zwolle. In 1981 ging hij in Nijmegen psychologie studeren, en in 1988 studeerde hij af in de spraak- en taalpathologie en de ontwikkelingspsychologie. Daarna werkte hij onder andere als onderzoeker op het Nijmeegse universitair rekencentrum aan het gebruik van synthetische spraak ter ondersteuning van computergebruik door blinden, en op het Max Planck Instituut voor Psycholinguistiek te Nijmegen aan de ontwikkeling van tests voor diagnostiek van afasie. Sinds 1990 is hij verbonden aan de vakgroep ontwikkelingspsychologie van de KU Nijmegen, respectievelijk als junior onderzoeker, als assistent in opleiding en als post doc, en doet onderzoek op het gebied van de sociale en persoonlijkheidsontwikkeling, met het accent op de betekenis van relaties met leeftijdgenoten. Hij is getrouwd met Nicole Wolfs. Samen hebben ze een dochter, Dolly, en wonen in Weert.

3 Is warm and re...   A+   A+

76 Can be trusted, is dependable   A+   A+
15 Shows concern for moral issues   A-   A
31 Recognizes feelings of others   A+   A+

11 Attempts to transfer blame to others   A+   A+
32 Tends to give, lend and share   A+   A

19 Open and straightforward   A-   A

29 Protective of others   A+O+
56 Jealous and envious of others   A-

4 Gets along well with other children   A-
20 Tries to take advantage of others   A+

85 Aggressive (physically or verbally)   A-
62 Obedient and compliant   A-
90 Is stubborn   A-
55 Afraid of being deprived   A+O+
95 Overreacts to minor frustrations   A-
30 Arouses liking in adults   A+C+
80 Teases other children
25 Uses and responds to reason   A+

9 Genuine and close relationships   A-
93 Behaves in a dominating manner   A-
13 Generally stretches limits   A-
10 Transient interpersonal relations   A-
61 Tends to be judgmental of others   A-O-

78 Easily offended   A-
21 Tries to be the center of attention   A+

91 Inappropriate in emotive behavior   A-
81 Can admit to own negative feelings

57 Tends to exaggerate mishaps   A-

54 Emotionally labile

Factor 2 Emotional Stability
88 Self reliant, confident   S+

23 Fearful anxious   S

46 Tends to go to pieces under stress   S

24 Tends to brood, ruminate or worry   S
60 Anxious in unpredictable situations   S
82 Self assertive

64 Calm and relaxed easy going
77 Appears to feel unworthy
35 Inhibited and constricted

72 Has a readiness to feel guilty
50 Bodily symptoms from stress

53 Indecisive, vacillating
43 Recoups after stressfull experiences

83 Seeks to be independent

33 Cries easily
39 Immobilized under stress

Factor 3 Conscientiousness
66 Attentive able to concentrate

47 Performance standards for self high

67 Planful thinks ahead
89 Competent, skillful

68 High intellectual capacity

99 Is reflective
40 Is curious and exploring

Factor 4 Openness
92 Physically attractive good looking
97 Active fantasy life
42 Interesting and arresting child
96 Creative
79 Suspicious of others
73 Responds to humor
36 Resourceful in initiating activities
5 Admired and sought by other children
75 Cheerful

Factor 5 Extraversion
8 Keeps thoughts and feelings to self

98 Shy and reserved

58 Emotionally expressive

...sses negative feelings openly