Reports from the project

Individual Development and Adaptation

THE SCHOOL-AGE DATA COLLECTIONS WITHIN THE RESEARCH PROGRAM INDIVIDUAL DEVELOPMENT AND ADAPTATION (IDA)

Technical report

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The reseaarch program Individual Development and Adaptation (IDA) was initiated by David Magnusson in 1964 and was led by him until 1996 when Lars R. Bergman became the principal investigator.

Reports from the project Individual Development and Adaptation published from 2000 and onwards:

No. 70 Bergman, L.R. Women's health, work, and education in a life-span perspective. Technical report 1: Theoretical background and overview of the data collection. *(January 2000)*

No. 71 Isaksson, K., Johansson, G., Lindroth, S., & Sverke, M. Women's health, work, and education in a life-span perspective. Technical report 2: The coding of work biographies. *(November 2000)*

No. 72 Publications 1961 - 2000. *(December 2000)*

No. 73 Zettergren, P. Peer rejection and future school adjustment. A longitudinal study. *(Licentiate thesis, October 2001)*

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No. 79 Wångby, M., Magnusson, D., & Stattin, H. Self-perceived psychological health among Swedish teenage girls: 2. Time trends in frequencies of adjustment problems between 1970 and 1996. *(March 2002)*

Nr. 80 Näswall, K., Sverke, M., Isaksson, K., Johansson, G., & Lindroth, S. Arbete, utbildning, familj: Beskrivande statistik från den personliga intervjun i IDA-II. Teknisk rapport. *(Augusti 2002)*

Nr. 81 Grip, A. Linjära statistiska kontra ickelinjära dynamiska modeller av individuell utveckling. *(Oktober 2002)*

No. 82 Isaksson, K., Johansson, G., Lindroth, S., & Sverke, M. Women's health, work, and education in a life-span perspective. Timing of childbirth and education: A life event approach to female career patterns. *(November 2002)*

No. 83 Daukantaite, D., & Bergman, L.R. Components of subjective wellbeing in Swedish women. *(January 2003)*

No. 84 Wångby, M. Questions about life-style in 2002. Follow-up survey on the 1998 data collection among females in the IDA-project. Technical report. *(March 2004)*

No. 85 Trost, K., & Bergman, E. Men's work and well-being in a lifespan perspective. Technical report from the 2002-2003 data collection. *(September 2004)*

No. 86 Lindfors, P. Questions on women's situation, life satisfaction and health. The 2004 IDA follow-up survey on women. Technical report. *(October 2004)*

No. 87 Lindfors, P. Stress, health and well-being in midlife. The 2004 stress study on men. Technical report. *(December 2005)*

No. 88 Selén, A. Sambandet mellan generellt och områdesspecifikt välbefinnande: En jämförelse mellan män och kvinnor. *(Oktober 2006)*

No. 89 Daukantaite, D. Women's health, work, and education in a life-span perspective. Technical report 3: Overview and detailed descriptions of the questionnaires. *(January 2007)*

No. 90 Wulff, C. Ability and satisfaction with school and job. A longitudinal study. *(Licentiate thesis, May 2007)*

No. 91 Andersson, H. Women's positive adaptation in childhood and adulthood. A longitudinal study. *(November 2007)*

No. 92 Lindfors, P., & Nilsson, T.K. Details on biomarkers added to the IDA database in 2006. *(January 2009)*

No. 93 Zettergren, P. The school-age data collections within the research program individual development and adaptation (IDA). Technical report. *(February 2010)*

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Foreword

This technical report contains a basic description of the school age data collections and variables within IDA. The report is written by Peter Zettergren.

The data collections were supported by grants to David Magnusson from the Swedish Board of Education, the Swedish Council for the Planning and Coordination of Research, the Swedish Council for Social Research, and the Bank of Sweden Tercentenary Foundation. The report was financed by funding to Lars Bergman for support of the infra structure of the data base from the Bank of Sweden Tercentenary foundation and the Swedish Research Council.

Stockholm, February 24, 2010

Lars R. Bergman
Professor
Director of IDA

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Introduction

The longitudinal research program Individual Development and Adaptation (IDA) started 1964 and hitherto hundreds of articles, books, and reports based on research inside the program have been published both internationally and for domestic usage. Many researchers have received both basic and advanced scientific training and skills during their work inside the program.

The basic ideas behind the research program were developed by Professor David Magnusson, who has been director and head of IDA from its beginning in the 60ths and until 1996. The program started as a school research investigation with the aim of following the development and adjustment of school children in Örebro, a fairly large town in Sweden. Magnusson's successor Professor Lars R. Bergman, who joined IDA very early as a young scientist, has continued to develop the empirical, theoretical, and methodological foundations of the program.

Magnusson initiated and led the work with the many data collections in the schools of Örebro and then in the young adult years of the participants. From the beginning he had good help from Associate Professor Anders Dunér and School Psychologist Rolf Beckne (who was responsible for the field work in the schools), not to mention the many research assistants that performed the practical field work in the school classes, collected data from the school archives, and assisted in constructing and sending out postal questionnaires. The Swedish Board of Education financed the research from its start and for many years.

The IDA research program was theoretically coupled to the development of a holistic-interactionistic and person-oriented orientation about human development. David Magnusson was one of the first and most prominent theoreticians and proponents of the theories behind that research direction. These theories have been an impetus for the development of the IDA program at the same time as the program has given important contributions to the progress of the theoretical ideas.

A very good entrance in getting to know more about the first years of the IDA program is the book by Magnusson and co-authors that summarizes the theoretical background, the school data collections, and the different sub-projects inside the program that were initiated during these years (Magnusson, Dunér, & Zetterblom, 1975). A more advanced and extended theoretical background to the project with emphasis on the interactional perspective is given by Magnusson in his book published 1988, where he also describes the planning and data collections during the second phase of the program when the participants had reached young adulthood and illustrates with some empirical research examples (Magnusson, 1988).

A bearing methodological idea for the data collections has been that to mirror the developmental changes over time it might to some extent be necessary to use different

instruments or items for different ages also for the same developmental areas. Thus, age-relevant instruments have been used or developed for developmental areas, such as cognitive abilities or social relations. For example, this means that some instruments have been seen as age-relevant over one or a few data collections, but then had to be replaced by other, in its turn more age-relevant instruments for the next data collection. For those longitudinal projects that include many years of study, like IDA, it seems to be a necessity to adjust the data collections and instruments to the changing life circumstances and developmental phases of different age groups. Thus, much work has been invested in creating parallelism between instruments, age, and developmental phase of the participants. (see also Magnusson & Bergman 1997, p. 7)

Already from its start, the program has had an interdisciplinary perspective acknowledging the importance of taking both a biological, psychological, and sociological stance pertaining to human development and, not least, to study the interactions/transactions between these different aspects of human development. Thus, researchers from different academic disciplines interested in human development have to a great extent contributed to the IDA-program and have used IDA data for different specific research projects.

The IDA-program has also been a hothouse for developing methods and statistical procedures mainly suited to the person-oriented and holistic-interactionistic theoretical perspective of individual development that, as we have seen, dominates the theoretical framework of the program (Bergman, Magnusson, & El-Khouri, 2003; Magnusson, 1988).

The here presented technical report aims at presenting a comprehensive summary of the IDA data collections from the compulsory school years of the participants and through the upper secondary or high school years up to the 12^{th} grade (which is the same as grade III in the Swedish high school or secondary school). At the time of the first data collection during the spring of 1965, three school cohorts were studied. These cohorts included all the boys and girls attending grades 3, 6, and 8 (mean age about 10, 13, and 15, respectively, or put in another way, mainly born 1955, 1952, and 1950, respectively) in the regular school system at Örebro. This middle-sized Swedish town has about 100.000 inhabitants and includes both urban (where the vast majority of inhabitants lives) and rural areas. The educational system is well-developed with a range up to the highest academic level. There were no private schools in Örebro and virtually none in Sweden at the time of the IDA school data collections, which secures that the cohorts represent unselected groups of school children in ordinary schools (both in ordinary classes and in classes or groups with pupils in need of remedial training or social support; remedial classes).

Below follows a short description of the three age cohorts participating in the first data collection in the spring of 1965:

- The youngest age group, the 3rd grade cohort, called the *main group*, has been followed from grade 3 all the way to middle adulthood and is still in focus for further follow-ups. The initial size of this cohort in grade 3 was 1031 school children (519 boys and 512 girls).
- The 6th grade cohort, called the *pilot group*, has been studied up to age 23, although not as frequently or intensively as the main group. This cohort consisted in the beginning of 892 school children (443 boys and 449 girls).
- The 8th grade cohort, called the *pre-pilot group*, consisted of 1259 participants (630 boys and 629 girls). They were investigated only once at the first data collection in the spring of 1965. The cross-sectional data for this cohort could be used for cohort comparisons.

The main IDA school data collections from the compulsory school years and through the upper secondary or high school years for the three cohorts are accounted for in Table 1.

Table 1. Main school data collections for the three IDA cohorts.

Year	Main group	Pilot group	Pre-pilot group
Spring term 1965	Grade 3	Grade 6	Grade 8
Spring term 1968	Grade 6	Grade 9	-
Spring term 1970	Grade 8	-	-
Spring term 1971	Grade 9	Grade 12 (III)	-
Spring term 1972	Grade 10 (I)	Grade 13 (IV, technical line)	-
Spring term 1973	Grade 11 (II)	Post high school	-
Spring term 1974	Grade 12 (III)	-	-

Note. Roman numbers in brackets refer to Swedish high school grades

All students that had moved into the community during the school years after the first data collection and who belonged to the same school grade cohort were included in the main group and the pilot group, respectively. Furthermore, in the adulthood follow-ups for the main group, all those who had participated in at least one data collection during the compulsory school years (grades 3 to 9) were included. This "large" main group consists of 1392 participants (682 girls and 710 boys).

It may be worth to mention that the number of students in the different cohorts was defined as all students who were represented on the class lists. This does not mean that all those students had participated or had data from all instruments or school registers

for that particular school year; they may, for example, have been absent because of sickness at specific data collection occasions.

Of course, some students also move out of the community with their families during the school years. As a result, the original grade cohorts diminish in number over time. In Table 2 the number of students in the main group in different grades is shown and longitudinally important over-grade group sizes are also accounted for. For example, the original grade 3 main group consisted of 1031 children. In grade 6, grade 8, and grade 9, respectively, this grade 3 cohort had diminished to 928, 893, and 859 participants, respectively. In grade I in high school only 648 students remained in the group. This is mainly due to the fact that in those days rather many elementary school children did not continue their studies in high school, which is a non-compulsory school form.

Table 2. Group sizes in different grades and over grades for the main group.

Grades	Boys	Girls	Total
Grade 3	519	512	1031
Grade 6	548	558	1106
Grade 8	603	590	1193
Grade 9	596	578	1174
1st grade in high school	460	403	863
Grade 3 and 6	457	471	928
Grade 3 and 8	442	451	893
Grade 3 and 9	425	434	859
Grade 3 and 1st grade in high school	338	310	648
Grade 6 and 8	516	517	1033
Grade 6 and 9	495	494	989
Grade 6 and 1st grade in high school	383	349	732

Attrition rate in different instruments were often rather low. This follows from the fact that most of the data collections were administered in the class rooms, where the researchers could easily reach almost all children in the examined cohorts. Further, some data are from school registers (for example grades) and from teacher evaluations, which secures a minimal number of missing values. For an example of the participation rate of the main group for a central measure, teacher ratings in grades 3 and 6, see Table 3.

Table 3. Rate of participation in teacher ratings for the main group in grades 3 and 6.

Grades	No of participants	Total sample
Grade 3	1026	1031
Grade 6	1092	1106

The IDA main group seems to be rather representative of the Swedish population as judged from parents' educational level, which is a measure that is often used to estimate socioeconomic status. Self-reported data about education and occupation from a questionnaire given to the parents in 1968 (when the IDA main group attended grade 6) shows that 4.3% of the IDA parents had an academic education of tree years or more. Information from Statistics Sweden about relevant age groups from the total Swedish population (those who were of age 20-40 in 1955 when a vast majority of the IDA children in the main group were born) show that 4.5% had an academic education of tree years or more (data from the Swedish Census, 1970, received trough personal telephone and e-mail contact with H. Odelholm, Statistics Sweden, in November, 2009). The academic educational categories are the only ones that are highly similar in the IDA educational scale and the one used by Statistics Sweden. Thus, it is not possible to make fine graded comparisons between the IDA main group and the relevant part of the Swedish population in lower educational categories. In some contrast to the findings for parental educational level, results from the investigation in grade 6 shows that the children in the IDA main group are somewhat above the average Swedish intelligence level for the same age group, but about equal in achievement tests (Bergman, 1973).

All data from the main data collections, the biological subsample, and official registers presented below have been included in *the master file of the IDA research program.* Information of the names and scales of the included variables in this master file are in Swedish and for a majority of them also in English.

A few *special data collections* pertaining to subgroups from the main group of the IDA program are not represented in the master file, but are stored in punch cards or data sheets in the archive of the program. These subgroup data collections are presented in the Appendix of this report.

Very thorough descriptions and theoretical discussions pertaining to the IDA research program are to be found in, for example, some of the references in English mentioned above (i.e., Magnusson, 1988; Magnusson & Bergman, 1997; Magnusson et al., 1975). Otherwise, many of the original main reports from the start of the IDA research program, as well as many other IDA reports, are only published in Swedish. In the present context it is worth to mention Magnusson, Dunér, and Beckne (1965) containing general objectives and planning of the research program, and methods and instruments used in the first main data collection in 1965; Magnusson, Dunér, and Zetterblom (1967) containing planning for the second main data collection in 1968; and

Magnusson, Dunér, and Zetterblom (1968) containing an account of the second main data collection including the instruments used.

The first main data collection – spring 1965

The main group – grade 3

Sociometric measures (instrument's name in Swedish: Sociometriska skattningar): This instrument contained the measures popularity according to *preference rank-orderings* of same-gender classmates; popularity *self-ratings*, that is, how they think the same-gender classmates in average have ranked them in comparison to how other same-gender classmates were ranked (for this self-rating technique, see Magnusson, 1962); and *positive nominations* of the three same-gender classmates they would like best to be with during breaks and during their leisure time outside the school, respectively (Adebäck, 1969a; Josephson, 1967; Magnusson et al., 1975; Zettergren, 2003).

Students' self-report questionnaire (Sw: Elevenkät): Predominantly questions about school situation, but also a few questions about home situation (Beckne, 1966; Magnusson et al., 1975).

Semantic differential technique (Sw: Semantisk differential): Twelve concepts, chosen from the domains own person/self, family, persons of same/opposite sex, the school, and aggression/norms, were judged in a series of 15 seven-point scales.

The concepts were: *Ideal self; I; Girl; Boy; Sister; Brother; Woman; Man; Teacher; Student; Fight; Disobedience.*

The seven-point scales were:

Good - Bad
Interesting - Dull
Pleasant - Unpleasant
Clean - Dirty
Happy - Sad
Unfair - Fair
Kind - Unkind
Strong - Weak
Brave - Cowardly
Manly – Womanly
Hard – Soft
Fast – Slow
Hot – Cold
Easy – Difficult
Safe – Dangerous

For details of this instrument, see Osgood, Suci, and Tannenbaum (1957) and for its use in the IDA research program, among other things pertaining to dimensions and profiles, see Magnusson et al. (1975).

Teachers' ratings of pupil's behavior (Sw: Lärarskattningar): The class teachers rated the pupils' behavior in the classroom on 7-graded scales. A higher score implies more of the specific behavior. The teachers obtained rating forms with detailed instructions, a heading for each variable and descriptions for the positive and negative extremes of the behavior in question. The instructions also included a statement that most children are between the two extremes to ensure a normal distribution as far as possible. One variable at a time was judged for all pupils in the class with the pupils' names in different order on different forms. The behavior variables were *Aggressiveness; Motor disturbance; Timidity; Disharmony; Distraction; Lack of school motivation; Tension.* For more information, see Magnusson et al. (1975).

Parents' questionnaire (Sw: Föräldraenkät): This questionnaire was sent home with the pupils in closed envelopes. The questionnaire was rather brief and factual. The content mainly pertained to family situation, the parents' educational and occupational status, and their view about the school and their child's school situation, including intrinsic school adjustment (Magnusson et al., 1975).

Intelligence testing (Sw: Intelligensmått): Six written group tests from the battery Differential Intelligence Analysis (DIA), designed by Härnqvist (1961), were used to measure the children's intelligence. This test was administered by the staffs of the schools as part of the ordinary school program in grade 3. The test consisted of 2 verbal, 2 logical-inductive, and 2 spatial tests, which measure differentially the various factors of intelligence and together a total measure of intelligence. Both subtest and total test raw scores and stanine scores (for which test scores were normalized for each gender separately) were included in the IDA data base. For more information, see Magnusson et al. (1975).

Nationally standardized achievement tests (Sw: Standardprov): In grade 3, these tests were given in Swedish and mathematics. They were used to measure scholastic achievement in a Swedish national perspective and contain different aspects of the courses (Magnusson et al., 1975).

Grades (Sw: Betyg): The grades for Swedish, mathematics, and Christian religion on a scale from the lowest grade 1 to the highest grade 5. The grades were obtained from school records (Broman, 1974).

The pilot group – grade 6

Sociometric measures (Sw: Sociometriska skattningar): Popularity according to *preference rank-orderings* of same-gender and opposite-gender classmates, respectively; popularity *self-ratings*, that is, how they think the same-gender classmates in average have ranked them in comparison to how other same-gender classmates were ranked (for this self-rating technique, see Magnusson, 1962); *positive nominations* of the 3 same-gender classmates they would like best to be with during breaks and during

their leisure time outside the school, respectively; *ranking* of same-gender classmates in respect to how confident they seem to be in school and also in respect to how school motivated they seem to be (Josephson, 1967; Magnusson et al., 1975).

Teachers' ratings of pupil's behavior (Sw: Lärarskattningar): The class teachers rated the pupils' behavior in the classroom on 7-graded scales. A higher score implies more of the specific behavior. The teachers obtained rating forms with detailed instructions, a heading for each variable and descriptions for the positive and negative extremes of the behavior in question. The instructions also included a statement that most children are between the two extremes to ensure a normal distribution as far as possible. One variable at a time was judged for all pupils in the class with the pupils' names in different order on different forms. The behavior variables were *Aggressiveness; Motor disturbance; Timidity; Disharmony; Distraction; Lack of school motivation; Tension.* For more information, see Magnusson et al. (1975).

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Students' self-report questionnaire (Sw: Elevenkät): Predominantly about school situation, but also a few questions about home situation and leisure time (Beckne, 1966; Magnusson et al., 1975).

Semantic differential technique (Sw: Semantisk differential): Fifteen concepts chosen from the domains own person/self, family, persons of same/opposite sex, the school, and aggression/norms were judged in a series of 15 seven-point scales.

The concepts were: *Ideal self; I; Girl; Boy; Sister; Brother; Woman; Man; Teacher; Student; Fight; Disobedience; School work; Solitariness; Future.*

The seven-point scales were:

Good - Bad
Interesting - Dull
Pleasant - Unpleasant
Clean – Dirty
Happy – Sad
Unfair – Fair
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The pre-pilot group – grade 8

Sociometric measures (Sw: Sociometriska skattningar): Popularity according to *preference rank-orderings* of same-gender and opposite-gender classmates, respectively; popularity *self-ratings*, that is, how they think the same-gender classmates in average have ranked them in comparison to how other same-gender classmates were ranked (for this self-rating technique, see Magnusson, 1962); *positive nominations* of the 3 same-gender classmates they would like best to be with during breaks and during their leisure time outside the school, respectively; *ranking* of same-gender classmates in respect to how confident they seem to be in school and also in respect to how school motivated they seem to be (Josephson, 1967; Magnusson et al., 1975).

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Interest schema – activities (Sw: Intresseschema): This inventory mentions different activities on which the pupils had to express their opinion (Magnusson et al., 1975; Waern & Härnqvist, 1962). The answers were given on a four-point rating scale with the alternatives: *Very interesting; Interesting; Dull; Very Dull.* The number of rated activities is 160, which represented eight spheres of interest:

- Aesthetic interests: art, drama, music
- Open-air interests: athletics, sport
- Domestic interests: home and household, needlework
- Office and commercial interests: office work, retail shops
- Practical interests: handicrafts, making and mending things
- Social interests: contacts with people – teaching, helping, leading
- Technical and scientific interests: constructing machines, research
- Verbal interests: literary production, languages, use of words and verbal conceptions

Stream and optional subject choices in school (Sw: Ämnes- och linjeval i skolan): Information about which choices the students made for optional subjects (grades 7, 8, and 9) and streams (grades 8 and 9).

For details of this instrument, see Osgood, Suci, and Tannenbaum (1957) and for its use in the IDA research program, among other things pertaining to dimensions and profiles, see Magnusson et al. (1975).

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- Open-air interests: athletics, sport
- Domestic interests: home and household, needlework
- Office and commercial interests: office work, retail shops
- Practical interests: handicrafts, making and mending things
- Social interests: contacts with people – teaching, helping, leading
- Technical and scientific interests: constructing machines, research
- Verbal interests: literary production, languages, use of words and verbal conceptions

Stream and optional subject choices in school (Sw: Ämnes- och linjeval i skolan): Information about which choices the students made for optional subjects (grades 7, 8, and 9) and streams (grades 8 and 9).

The second main data collection – spring 1968

The main group – grade 6

Sociometric measures (Sw: Sociometriska skattningar): Popularity according to *preference rank-orderings* of same-gender classmates; popularity *self-ratings*, that is, how they think the same-gender classmates in average have ranked them in comparison to how other same-gender classmates were ranked (for this self-rating technique, see Magnusson, 1962); *ranking* of same-gender classmates in respect to how confident they seem to be in school and also in respect to how school motivated they seem to be (Magnusson et al., 1975).

Students' self-report questionnaire (Sw: Elevenkät): Predominantly about school situation, but also a few questions about home situation and leisure time. This is mainly the same questionnaire that was given 1965 to the then grade 6 pilot group with some changes due to the experiences and findings from that earlier questionnaire (Magnusson et al., 1975).

Parents' questionnaire (Sw: Föräldraenkät): A questionnaire to the parents was sent home with the pupils in closed envelopes. The questionnaire was rather brief and factual. The content mainly pertained to family situation, the parents' educational and occupational status, and their view about the school and their child's school situation, including intrinsic school adjustment and choice of educational line (Magnusson et al., 1975).

Teachers' ratings of pupil's behavior (Sw: Lärarskattningar): The class teachers rated the pupils' behavior in the classroom on 7-graded scales. A higher score implies more of the specific behavior. The teachers obtained rating forms with detailed instructions, a heading for each variable and descriptions for the positive and negative extremes of the behavior in question. The instructions also included a statement that most children are between the two extremes to ensure a normal distribution as far as possible. One variable at a time was judged for all pupils in the class with the pupils' names in different order on different forms. The behavior variables were *Aggressiveness; Motor disturbance; Timidity; Disharmony; Distraction; Lack of school motivation; Aspiration.* This is the same instrument that was used in the first main data collection in 1965 for all three cohorts, with one important exception. There were some uncertainties about the behavior variable *Tension*, which was included in 1965, where both extreme poles may be conceived positively. In 1968, this scale was altered by renaming it as *Aspiration* and rewording the description of the extreme poles, which was considered to illustrate the intended behavior more adequately. For more information, see Magnusson et al. (1975).

Semantic differential technique (Sw: Semantisk differential): Seven concepts chosen from the domains own person/self, persons of same/opposite sex, and the school were

judged in a series of 14 seven-point scales (the same scales as in the 1965 data collection for the main group except for one scale, clean - dirty).

The concepts were: *Girl; Boy; I; Woman; Man; Teacher; Future.*

The seven-point scales were:

Good - Bad	Brave - Cowardly
Interesting - Dull	Manly - Womanly
Pleasant - Unpleasant	Hard - Soft
Happy - Sad	Fast - Slow
Unfair - Fair	Hot - Cold
Kind - Unkind	Easy - Difficult
Strong - Weak	Safe - Dangerous

For details of this instrument, see Osgood, Suci, and Tannenbaum (1957) and for its use in the IDA research program, among other things pertaining to dimensions and profiles, see Magnusson et al. (1975).

Interest schema – activities (Sw: Intresseschema): This inventory mentions different activities on which the pupils had to express their opinion (Magnusson et al., 1975; Waern & Härnqvist, 1962). The answers were given on a four-point rating scale with the alternatives: *Very interesting; Interesting; Dull; Very Dull.* The number of rated activities is 160, which represented eight spheres of interest:

- Aesthetic interests: art, drama, music
- Open-air interests: athletics, sport
- Domestic interests: home and household, needlework
- Office and commercial interests: office work, retail shops
- Practical interests: handicrafts, making and mending things
- Social interests: contacts with people – teaching, helping, leading
- Technical and scientific interests: constructing machines, research
- Verbal interests: literary production, languages, use of words and verbal conceptions

Vocational questionnaire (Sw: Yrkesenkät): The questionnaire concerns both educational and occupational topics, with most emphasis on stream and subject choices for the future compulsory education. This was a shorter form than the forms that were later given in grade 8 and grade 9 to students in the main group and in grade 9 in the pilot group (Magnusson et al., 1975).

Occupational differential (Sw: Yrkesformulär): A form was constructed according to the semantic differential technique (Magnusson et al., 1975; Osgood, Suci, & Tannenbaum, 1957). It was designed to measure attitudes to ten occupations of different status and from different branches (*doctor; teacher; nurse assistant; general manager;*

ank clerk; shop assistant; chief engineer; foreman; workshop worker; artist), and it lso included 4 main groups of alternative actions available to the students after ompulsory school (*to begin work; vocational training school; non-vocational ontinuation school; higher secondary school*). The attitudes were measured in the llowing seven-graded scales:

ork with hands – theoretical work
ale – female
teresting – dull
w income – high income
ean – dirty
fficult – easy
versified – monotonous
orking with others – working alone
ctic – calm
gh status – low status
ake own decisions – must obey
ould like very much to become – would certainly not like to become
ng education – short education (only for occupations)
good – is bad (only for groups of alternative actions)

elligence testing (Sw: Intelligensmått): Six written group tests from the battery fferential Intelligence Analysis (DIA), designed by Härnqvist (1961), were used to asure the children's intelligence. This test was given in the autumn term 1967 and ministered by the staffs of the schools as part of the ordinary school program in grade 6. The test consisted of 2 verbal, 2 logical-inductive, and 2 spatial tests, which measure ferentially the various factors of intelligence and together a total measure of elligence. Both subtest and total test raw scores and stanine scores (for which test res were normalized for each gender separately) were included in the IDA data base. more information, see Elinder (1974a) and Magnusson et al. (1975).

ative ability (Sw: Kreativitetstest): This instrument measuring divergent production tained two tests, both designed by Larsson and Sandgren (1968):

- *Consequences* (Co), a verbal test with five items. With fluency scoring it represents most closely the factor Divergent Semantic Units (DMU) in Guilford's structural model (Guilford, 1967)
- *Divergent figures* (DF) a type of test called "doodles" with eight items. It is equivalent with the test Pattern Meanings (Wallach & Kogan, 1965) and represents the factor Divergent Figural Implications (DFI) in Guilford's model.

Andersson and Dunér (1983), Elinder (1974a), and Magnusson et al. (1975) for e information.

Nationally standardized achievement tests (Sw: Standardprov): In grade 6 these tests were given in Swedish, mathematics, and English in which subjects all students were given the same courses. They were used to measure scholastic achievement in a Swedish national perspective and contain different aspects of the courses (Magnusson et al., 1975).

Grades (Sw: Betyg): Swedish, mathematics, Christian religion, English, and general subjects (a summarized measure for civics, history, geography, and natural science) with grades on a scale from 1 (lowest) to 5 (highest). The grades of different students were obtained from school records (Broman, 1974).

The pilot group – grade 9

Parents' questionnaire (Sw: Föräldraenkät): A questionnaire to the parents was sent home with the pupils in closed envelopes. The questionnaire was rather brief and factual. The content mainly pertained to family situation, the parents' educational and occupational status, and their view about the school and their child's school situation, including intrinsic school adjustment and possible educational and occupational choices (Magnusson et al., 1975).

Interest schema – activities (Sw: Intresseschema): This inventory mentions different activities on which the pupils had to express their opinion (Magnusson et al., 1975; Waern & Härnqvist, 1962). The answers were given on a four-point rating scale with the alternatives: *Very interesting; Interesting; Dull; Very Dull.* The number of rated activities is 160, which represented eight spheres of interest:

- Aesthetic interests: art, drama, music
- Open-air interests: athletics, sport
- Domestic interests: home and household, needlework
- Office and commercial interests: office work, retail shops
- Practical interests: handicrafts, making and mending things
- Social interests: contacts with people – teaching, helping, leading
- Technical and scientific interests: constructing machines, research
- Verbal interests: literary production, languages, use of words and verbal conceptions

Vocational questionnaire (Sw: Yrkesenkät): The questionnaire was divided into two parts; one concerning educational topics and the other concerning occupational topics. This was the largest and most complete vocational questionnaire given in the school years and served as a guide for the construction of shorter vocational questionnaires given to the main group in grade 8 and grade 9. Choices and preferences for different educational lines and occupations were examined, as well as a large number of occupational values (Magnusson et al., 1975).

Occupational differential (Sw: Yrkesformulär): A form was constructed according to the semantic differential technique (Magnusson et al., 1975; Osgood, Suci, & Tannenbaum, 1957). It was designed to measure attitudes to ten occupations of different status and from different branches (*doctor; teacher; nurse assistant; general manager; bank clerk; shop assistant; chief engineer; foreman; workshop worker; artist*), and it also included 4 main groups of alternative actions available to the students after compulsory school (*to begin work; vocational training school; non-vocational continuation school; higher secondary school*). The attitudes were measured in the following seven-graded scales:

work with hands – theoretical work
male – female
interesting – dull
low income – high income
clean – dirty
difficult – easy
diversified – monotonous
working with others – working alone
hectic – calm
high status – low status
make own decisions – must obey
would like very much to become – would certainly not like to become
long education – short education (only for occupations)
is good – is bad (only for groups of alternative actions)

Self-reported criminality questionnaire (only for boys) (Sw: Kriminalitetsenkät): The boys were given a questionnaire with items referring to 22 different types of more or less serious crimes, items referring to non-criminal, but undesirable conduct, items concerning peer relationships, and items pertaining to the experience of being different, the outsider feeling (Becker, 1963), compared to other students. Several questions were asked in connection to the items about criminality in order to elucidate some of the circumstances around the criminal act (for information about the construction of the questionnaire, see Magnusson, Dunér, & Olofsson, 1968; also Dunér & Haglund, 1974; Magnusson et al., 1975; Olofsson, 1971).

The third main data collection – spring 1970

The main group – grade 8

Sociometric measures (Sw: Sociometriska skattningar): Popularity according to *preference rank-orderings* of same-gender and opposite-gender classmates, respectively; popularity *self-ratings*, that is, how the students think the same-gender classmates in average have ranked them in comparison to how other same-gender

classmates were ranked (for this self-rating technique, see Magnusson, 1962; for a general description of the sociometric data collection, see Magnusson et al., 1975).

Self-report questionnaire about leisure-time peers (Sw: Elevenkät om fritidskamrater): This questionnaire pertains to the number of leisure-time peers, these peers' approximate age, if they attend school and which class (the student's own class or not) or if they work, and how much time, when, and where the student meets the peers (see Magnusson et al, 1975; Zettergren, 2005).

Self-report questionnaire about norms and norm conflicts (Sw: Normenkät): A questionnaire about adolescent norms was constructed for the IDA project and presented to the participants in the main cohort of the project (Henricson, 1971; Magnusson et al., 1975; also Chinapah, 2000; Zettergren, 2005). One part of the questionnaire dealt with a number of critical situations, which the adolescents were asked to evaluate in different norm dimensions. These dimensions are related to own norm values, intentions, and behaviors; to peers' norm values and intentions; to parents' norm values and expectations of their own adolescent; and to sanction proneness of parents and peers. The critical norm situations included the following behaviors: cheating in a school test; testing hashish; staying out late at night without permission; playing truant from school; getting drunk (on beer, wine, or liquor); pilfering in a shop; ignoring parents' prohibitions; hanging around town every night; having sexual intercourse with a boy/girl friend; and to talk to the school medical officer or nurse about a friend with drug problems (to help the friend). Another part of the norm questionnaire included a number of single questions about norms and relations to peers and parents.

Vocational questionnaire (Sw: Yrkesenkät): The questionnaire was rather short and divided into two parts; one concerning educational topics which dealt with actual choices of future studies, earlier choices and how the student experienced the school situation including satisfaction, study aspirations, and ability. In the other minor part of the questionnaire, which concerned occupational topics, the student rated the importance of nine occupational values (see description below under occupational differential, where they are also included) (Magnusson et al., 1975).

Occupational differential (Sw: Yrkesformulär): A form was constructed according to the semantic differential technique (Magnusson et al., 1975; Osgood, Suci, & Tannenbaum, 1957). It was designed to measure attitudes to 9 occupations of different status and from different branches (*doctor; teacher; nurse assistant; general manager; bank clerk; shop assistant; chief engineer; foreman; workshop worker*, which are the same occupations as used in grade 6, however, excluding the occupation *artist*)), and it also included the concept *the job I would like to have most*. However, the attitudes were measured in other scales than were used in grade 6, including the nine occupational values that were measured in the vocational questionnaire described above. Together the

concepts of the occupational differential were measured in 13 seven-graded scales (where the occupational values in the vocational questionnaire are the last nine):

would like to be – would not like to be
would be accepted for training – would not be accepted for training
would manage the work and training – would not manage the work and training
would like the work – would not like the work
fine – not fine
the work has to be done fast – the work has to take the time that is needed
mechanized – not mechanized
often meet people – never meet people
everyone can manage this work – not everyone can manage this work
decide your own working-time – do not decide your own working time
outdoors - indoors
control and teach others – manage one's own work
take care of other people – do not take care of other people

Intelligence testing (Sw: Intelligensmått): WIT III (Westrin's Intelligence Scale; see Westrin, 1967) was group-administered in the autumn term 1967 as part of the ordinary school program in grade 8. The test is a factor type test with four parts: Analogies, a test of inductive ability on verbal material; Opposites, to measure verbal comprehension; Number Combinations, a test of deduction ability; and Puzzle, a test of spatial ability. Together the total score represents a measure of general intelligence. The students' subtest raw scores and total scores were transformed to stanine points according to the manual for the WIT-test (Westrin, 1967). For more information, see Elinder (1974a) and Magnusson et al. (1975).

Grades (Sw: Betyg): Grades were obtained from school records. They are in scales from 1 (low) to 5 (high). Note that that the students had to choose between general and advanced courses in mathematics and English (but not in Swedish). Including these different courses in mathematics and English, 14 different subjects were accounted for:

- Swedish
- Mathematics, general course
- Mathematics, advanced course
- English, general course
- English, advanced course
- Arts
- Textiles and Wood- and metalwork
- Physical training
- Christian religion
- Civics
- History
- Geography

- Chemistry
- Physics

For more information, see Broman (1974).

Nationally standardized achievement tests (Sw: Standardprov): In grade 8 the only test that was the same for all students was the one in the subject Swedish, because, as we saw above for grades, in mathematics and English the students had the possibility to choose different courses. The test was used to measure scholastic achievement in a Swedish national perspective and contain different aspects of the course in Swedish (Magnusson et al., 1975).

Symptoms questionnaire (only for girls) (Sw: Symptombelastningsenkät): Information of different kinds of symptoms was obtained by this questionnaire given to all girls. The questionnaire was tried out in a preliminary investigation and was then somewhat revised. The replies were given in 5-graded scales. The symptoms were divided according to their function into 5 groups:

- Antisocial behaviors
- Disturbances in relations
- Physical symptoms
- Emotional disturbances
- Disturbances in self-esteem

For a detailed description, see Crafoord (1972) and Magnusson and colleagues (1975).

The fourth main data collection – spring 1971

The main group – grade 9

Students' self-report questionnaire (Sw: Elevenkät): Items about school situation, self-experience, peer relations, relations to parents and other adults, norms, antisocial behaviors, and use of drugs. The questionnaire was as far as possible adjusted in content and wording to earlier investigations and projects in the IDA research program. For more information and analyses see Magnusson et al. (1975) and Marnell, Dunér, and Magnusson (1973).

Parents' questionnaire (Sw: Föräldraenkät): A relatively short questionnaire to the parents was sent home with the pupils in closed envelopes. The questionnaire focused on the child's choice of educational line or vocation and with a few items that dealt with home and parents (Magnusson et al., 1975). Family information pertained to the father's and mother's educational level, number of children in the family, the place, according to

age, of the investigated child among siblings, and some demographic data about the siblings.

Vocational questionnaire (Sw: Yrkesenkät): As in grade 8, the form was concentrated on the current plans for studies, vocational training, or work, and also included questions about more long-term plans for work. The questionnaire was to some extent a replica of the vocational questionnaires given to the main group in grades 6 and 8 (Magnusson et al., 1975).

Interest inventory (Sw: Intresseformulär): The interest schema used earlier for the main group (in grade 6) and the pilot group (in grade 9) was not used this time, because at the time of this data collection there seemed to be new and better instruments for adolescents. An inventory "Activities" (developed by a Swedish research group; Olsson, 1970) was chosen. The 99 items describe different activities assigned to one of the ten interest spheres represented. The results are presented as interest profiles that give an apprehension of how the students value the different spheres. The ten interest spheres are:

1. Interest in superficial contacts
2. Interest in welfare contacts
3. Interest in psychological analysis
4. Interest in dominance activities
5. Interest in technical tasks
6. Interest in physically demanding work
7. Interest in physical work
8. Interest in mathematical work
9. Interest in domestic activities
10. Interest in artistic activities

For detailed descriptions, see Elinder (1974b) and Magnusson et al. (1975).

School lines and grades (Sw: Linjeval och betyg): The students had to choose one of nine different lines or streams before the transfer to grade 9. These lines differed in number and amount of theoretical and practical subjects and prepared for different secondary school (high school) choices or occupational choices:

- **9g** is the most theoretically advanced preparing for theoretical lines in the 3-year long upper secondary school (or 4-year long for engineering). This line was the most popular choice among both girls (46% of girls) and boys (37% of boys).

- **9h** (humanistic), **9t** (technical), **9m** (mercantile), **9a** (social-economic) are all semi-theoretical lines that in general prepare for shorter 2-year long upper secondary educations focused on more specific occupational areas. The most

popular lines were for boys 9t (24%) and 9h (17%), and for girls 9h (25%) and 9a (13%).The other alternatives were chosen by very few students.

- **9pr** (general practical), **9tp** (technical practical), **9ha** (trade, commerce), **9ht** (household-technical) are preparing for the labor market or practical occupational training. The most popular line was for boys 9tp (13%) and for girls 9ht (10%), while few students did choose any of the other alternatives.

The grades representing 17 subjects/courses were obtained from school records (subjects, specific or characteristic for only one or a few lines were not included). The grades range from 1 (lowest) to 5 (highest) and are thought to mirror the national standard of attainment according to a nation-wide normal distribution for the specific subject/course. Note that there was a possibility to choose between different courses for some subjects, like mathematics and English, and that there were line-specific differences for some subjects. Thus, in those subjects grades obtained by different students are not comparable with each other. The different subjects are listed below complemented when necessary with notes about line-specific differences:

- Swedish. *Comment:* The practical lines, 9pr, 9tp, 9ha, and 9ht, have a somewhat less advanced course in Swedish compared to the more theoretical lines, but the grades for the different courses could approximately be regarded as equated in statistical analyses.
- Mathematics, general course. *Comment:* Only the 5 theoretical lines 9g, 9h, 9t, 9m, and 9a, have the subject mathematics, either general or advanced. For the 4 practical lines, mathematics is included in line characteristic subjects.
- Mathematics, advanced course. *Comment:* See comment for the general course above.
- English, general course. *Comment:* English is obligatory only in the 5 theoretical lines (either the general or the advanced course). The students in the 4 practical lines could choose between a somewhat less advanced English course, music, or arts. This English course could for analytical purposes be equated with the general course in the 5 theoretical lines.
- English, advanced course. *Comment:* Only in the 5 theoretical lines. See comment for English, general course.
- Christian religion. *Comment:* Only in the 5 theoretical lines.
- Civics. *Comment:* Same course in all lines.
- History. *Comment:* Only in the 5 theoretical lines.
- Geography. *Comment:* Same course in all lines.
- Biology. *Comment:* Same course in all lines.
- Chemistry. *Comment:* Only in the 5 theoretical lines.
- Physics. *Comment:* Only in the 5 theoretical lines.
- Music. *Comment:* Same course in all lines. Rather few students participated in this subject.

- Arts. *Comment:* Same course in all lines but optional for the 4 practical lines. See comment for English, general course.
- Textiles and Wood- and metalwork. *Comment:* Same course in all lines.
- Home economics. *Comment:* Same course in all lines.
- Physical training. *Comment:* Same course in all lines.

For more information, see Broman (1974).

Creativity tests (Sw: Kreativitetstest): Three different tests of divergent production were used (all three fluency scored):

1. *Pukort* is an abbreviated standardized Swedish version of the Purdue Creativity test, form G (Lawshe & Harris, 1960), in which the task is to give alternative uses for objects represented by pictures or to tell what pictures represent. With the use of fluency scoring it represents the factor Divergent Figural Units (DFU) in Guilford's structural model (Guilford, 1967). In the IDA investigations, Pukort has been further shortened from ten to eight items, in order to lower the burden for the students.
2. *Titles* is a Swedish version of Plot titles (Guilford, 1967), where the task is to formulate titles to fit texts. With fluency scoring it represents the factor Divergent Semantic Units (DMU) in Guilford's model.
3. *Brick* is a Swedish version of The Brick Test (Guilford, 1967). It is a small test where you have to give alternative uses for a brick and represents Divergent Semantic Units (DMU) according to Guilford (1967).

For more information see Andersson and Dunér (1983), Elinder (1974a), and Magnusson et al. (1975).

Teachers' ratings (Sw: Lärarskattningar): The students had many teachers in grades 7 to 9. Thus, for reliable teacher ratings, the teachers working in a certain class met and, under the leadership of the class supervisor, discussed and selected the two boys and two girls who best fitted into given descriptions. The method was a modified "Guess-who technique". The variables of the descriptions were in line with variables obtained in earlier investigations of the research program:

- Scholastic ability
- Creative ability
- Extrinsic maladjustment, aggressiveness
- Intrinsic maladjustment, timidity
- Social maladjustment

The gender of the class supervisor was also noted, as well as the number of boys and girls in the class. More information can be found in Magnusson et al. (1975).

Questionnaire of self-reported criminality (only for boys) (Sw: Kriminalitetsenkät): The boys were given a questionnaire with items referring to 14 different types of more or less serious crimes. Twelve of items were retained from the criminality questionnaire given to the pilot group at grade 9 (see above the 1968 main data collection) and two items dealing with violence were added. Besides questions about their own criminal behavior, several questions were asked in order to elucidate some of the circumstances around the criminal act (Dunér & Haglund, 1974; Olofsson, 1971). The questionnaire also contained items referring to non-criminal, but undesirable conduct and items concerning peer relationships. An important section was also added in order to measure the students' attitudes and knowledge about crime with the help of 10 vignette stories about criminal or antisocial behaviors of 16-year-old previously unpunished boys. See also Magnusson and colleagues (1975).

School dropouts (only registered for boys) (Sw: Skolavhoppare): A variable was created that shows which boys dropped out of school beforehand during grade 9. The registered boys are students who for different reasons and/or according to different paragraphs in the laws and regulations for the Swedish compulsory school did not finish their obligatory studies (at least not this school year) (see Persson, 1972). Very few girls were school dropouts and they were not included in the investigation.

The pilot group – high school, grade III

Students' self-report questionnaire (Sw: Elev-/gymnasieenkät): This questionnaire was given in the spring term 1971, and was primarily accounting for the occupational and educational choices of the students, both pertaining to their present high school studies and the future college/university studies or occupations, the students' experiences of the high school studies, the expectances of parents and teachers, and the students' aspirations and apprehensions pertaining to studies and occupations. Some items about family situation were also included. Elg (1972) and Magnusson et al. (1975) provides more information.

Within the coming 2 years after grade III in high school, two more educational and occupational questionnaires (Sw: Studie- och yrkesvalsenkäter) were given to the pilot group:

- *Self-report questionnaire, technical high school, grade IV:* Most high school lines had a study length of three years. However, the technical/engineering high school line included a fourth year of study. For students attending this fourth year, an additional self-report questionnaire about vocational and occupational choices was administered during the spring of grade IV (in the year 1972).
- *Self-report questionnaire, post-high school:* In the spring of 1973, two years after the third and for most students final high school year, a questionnaire was mailed to all previous high school students in the pilot group. This

questionnaire dealt with their present and future vocational and occupational choices, and their experiences of the high school studies (see Bergman, Berggren, Dunér, & Magnusson, 1973).

Intelligence testing (Sw: Intelligensmått): Two different tests were used (see Elg, 1972; Magnusson et al., 1975):

1. *WIT III* (Westrin's Intelligence Scale; see Westrin, 1967) was group-administered in the spring term. The test is a factor type test with four parts. Of the four parts in the test only one part was used, *Opposites*, to measure verbal comprehension.
2. *Raven's Advanced Progressive Matrices, set 2* (Raven, 1965) is one of few tests that give satisfactory discrimination in a high school student group.

Creativity tests (Sw: Kreativitetstest): Two different tests of divergent production were used. Both were fluency scored (see Elg, 1972; Magnusson et al., 1975):

1. *Pukort* is an abbreviated standardized Swedish version of the Purdue Creativity test, form G (Lawshe & Harris, 1960), in which the task is to give alternative uses for objects represented by pictures or to tell what pictures represent. With the use of fluency scoring it represents the factor Divergent Figural Units (DFU) in Guilford's structural model (Guilford, 1967). In the IDA investigations Pukort has been further shortened from ten to eight items, in order to lower the burden for the students.
2. *Titles* is a Swedish version of Plot titles (Guilford, 1967), where the task is to formulate titles to fit texts. With fluency scoring it represents the factor Divergent Semantic Units (DMU) in Guilford's model.

Teachers' ratings (Sw: Lärarskattningar): The students had many teachers in high school. Thus, for more reliable teacher ratings, the teachers working in a certain class met under the leadership of the class supervisor to discuss and then select the three students in the class who best fitted into the description "prospects of success in adult life", with the added information that success depends on many factors such as capacity for theoretical studies, being ingenious, flexibility, endurance etc. This was a form of "Guess who technique" (Elg, 1972; Magnusson et al., 1975).

Grades (Sw: Betyg): The grades given in the different study lines in the spring term were obtained from school records. Some courses were the same over several lines and some were line specific. This made it difficult to create a single, common measure of study performance that was equitable over all high school lines. Thus, study performance was defined as the average score of all grades in the different study lines (Elg, 1972).

The data collections in high school for the main group – spring 1972 to spring 1974

A new school context

The main group in the IDA program belonged to the first age group of students in Sweden who after compulsory school continued their studies in the new upper-secondary school/high school (the gymnasium), which was introduced in the autumn term 1971. The new gymnasium contained two-year-long practical and semi-theoretical study lines, three-year-long theoretical study lines, and a four-year-long technical/engineering study line, as well as shorter half-year and one-year occupational courses (although with few students; see Beckne, 1974).

Grade I in high school

Students' self-report questionnaire (Sw: Elev-/gymnasieenkät): This questionnaire was given to all students in the different lines in high school in the spring of 1972. The questionnaire contained items about the present school situation of the students, comparisons with their school situation in compulsory school, how they experience their studies, some questions about future vocational and occupational choices, and a few questions about their personal economic situation (a more detailed description is found in Beckne, 1974).

Grade II in high school

Self-report questionnaire about school situation (Sw: Elev-/gymnasieenkät): This questionnaire was given to all students in the different lines in high school in the spring of 1973. The questionnaire contained items about the present and past school situation of the students, how they experience and succeed in their studies, different aspects of their health (somatic and psychosomatic reactions), and some existential questions.

Self-report questionnaire about educational and occupational choices (Sw: Studie- och yrkesvalsenkät): In the spring term 1973 the students answered questions about their choice of high school line, what they intend to do pertaining to educations and occupations when they graduate from high school, what is important for them and what they worry about when they make these choices, and how they have got information about different educational lines and occupations.

Self-report questionnaire about leisure-time activities (Sw: Fritidsaktiviteter): This large questionnaire was given in the spring term of 1973. The purpose was to collect information about what the students made at their leisure time pertaining to organized activities and interests, both in a more active and a passive form. It was explicitly stated that the time period in question was limited to the last two school terms. An activity index and a creativity index were derived from the items in the questionnaire.

Self-report questionnaire about life goals (Sw: Livsmålsenkät): The students were presented with four lists with different basic or terminal life goals or life values (e.g., Rokeach, 1968) that might be personally important. The values on the lists were complemented with short specifying explanations.

In each of the first three lists there were seven values and goals from seven different domains (or clusters) of values. These seven domains were the same for all three lists. Thus, each domain was represented by three values, one in each list. The seven value domains or clusters were (with examples of values within parenthesis):

- Relations (true friendship)
- Politics, active (social and political change)
- Politics, passive (equality)
- Emotional values (happiness)
- Personality values (self-respect)
- Social status (social recognition)
- Life content (a sense of accomplishment)

For a detailed description of selection of values and the clustering process, see Backteman, Dittmer, and Berggren (1973), and for a theoretical background to their work and to terminal values, see Rokeach (1968).

The fourth list stands apart from the other lists. Seven life values were selected from the first three lists, one from each of the seven value domains. In addition, six other life values/goals were included; that is, together 13 values.

The students were asked to rank the different goals and values on each list after how important they think these goals/values are for themselves.

Grades (Sw: Betyg): Grades from the spring term were obtained from the school records. For all high school lines, the grades in Swedish were accounted for. In addition, grade point averages for the typical or characteristic subjects in the different lines were used as indices of academic achievement.

Grade III in high school

IRS (Individuals' Reactions to Situations) Inventory (Sw: IRS-formulär): In this anxiety inventory the students rated the intensity of their emotional reactions on 10 anxiety scales for each of nine hypothetical anxiety provoking situations (e.g. "important examination", "having a wound sewed up", and "lost in the woods at night"). The intensity of the emotional reactions was measured by 5-point scales, ranging from "not at all" to "very much". Information about the construction and use of the IRS inventory can be found in, for example, Magnusson and Ekehammar (1975), Magnusson and Stattin (1977), and Stattin and Magnusson (1980).

The SPA-scale, the DS form (Sw: Ångestformulär): This is a long (80 items) inventory about the level of different expressions of anxiety (the inventory bears some similarity to the Karolinska Scales of Personality Questionnaire, the KSP-scale, see Schalling, Asberg, Edman, & Oreland, 1987). The items were rated on 4-point scales ranging from "does not apply at all" to "applies completely". The items are summarized in eight higher order variables (e.g., psychic anxiety; somatic anxiety; and muscular tension). This inventory has been evaluated by Stattin (1975).

Self-report questionnaire about life goals (Sw: Livsmålsenkät): This is the same questionnaire that was given in grade II in high school for the same cohort, although only the first three of the four lists were used in grade III. See grade II above for more information.

Self-report questionnaire about school situation (Sw: Elev-/gymnasieenkät): This questionnaire was given to all students in the spring of 1974. The questionnaire was the same as in grade II and contained items about the present and past school situation of the students, how they experience and succeed in their studies, how they experience their health in different aspects (somatic and psychosomatic reactions), and some existential questions.

Self-report questionnaire about educational and occupational choices (Sw: Studie- och yrkesvalsenkät): In the spring term 1974 the students were asked about their choice of high school line. They were further asked in a rather detailed manner about what they intend to do pertaining to educations and occupations when they graduate from high school, what is important for them and what they worry about when they make these choices, and how they have got information about different educational lines and occupations (see Wändahl, 1975).

Self-report questionnaire about leisure-time activities (Sw: Fritidsaktiviteter): This questionnaire was given in the spring of 1974 and the purpose was to collect information about what the students made at their leisure time pertaining to organized activities and interests, both in a more active and a passive form. It was explicitly stated that the time period in question was limited to the last two school terms.

Grades (Sw: Betyg): Grades from the spring term were obtained from the school records. For all high school lines, the grades in Swedish were accounted for. In addition, grade point averages for the typical or characteristic subjects in the different lines were used as indices of academic achievement.

Subsample investigations

The biomedical subsample

Physiological investigations were made on a subsample from the main group at grade 6 and grade 8. The limitation to a subsample from the whole cohort was due to the available resources at the EEG-laboratory at the Örebro hospital, which, apart from the laboratory ordinary work, amounted to a physiological examination of about 250 persons during the academic year when the main group was in grade 6. The chosen subsample consisted of 9 complete grade 6 classes, which gave the desired sample of about 250 students.

The classes were selected so that the biomedical subsample would resemble the total grade 6 group as much as possible (for a detailed description about the reasons for choosing this subsample, see Magnusson et al., 1975). In controlling for intelligence, SES (indicated by parents' educational level), and teacher ratings for aggression (all these data were collected in grade 6), the author of the present report found that the biomedical subsample was representative for the total group in all those aspects for both boys and girls, with one exception: The families of the boys in the biomedical subsample had a significantly lower SES compared to the total group of boys. However, the effect size was rather small, only about .3.

The following physiological data was assembled:

Grade 6:

- Height and weight
- Brain activity, EEG, with the student at rest and when over-breathing (hyperventilating). The records have been evaluated with consideration to deviations outside normal age boundaries in a code with six positions (e.g., degree, extent, location, static type, dynamic type, and condition when a deviation is observed).
- Physical performance capacity was measured by using a test bicycle and measuring the pulse every minute during six minutes. Two tests were made with an interval of one week. There was good data stability between the two occasions.
- Hormonal activity/reactivity pertaining to the catecholamines adrenalin and noradrenalin was measured through collection of urine after a relaxed, inactive condition and after an active, somewhat straining condition.

Grade 8:

- Ossification data from the wrist was gathered as a measure of biological age through a rather simple X-ray technique.

More detailed accounts of the biological subsample, attrition data, and the biological measures can be found in Johansson (1970), Johansson, Frankenhauser, and Magnusson (1973), Magnusson et al. (1975), and Svenonius (1976). For example about attrition, one whole school class is missing in the EEG measurement due to administrative reasons in the laboratory (Svenonius, 1976).

Data from official records for the main group

As a complement to the data obtained from the students, parents, teachers, and schools, data from other sources, particularly official registers, were collected. Magnusson (1988) emphasizes that register data have been collected for two purposes, namely "(a) to cover relevant aspects of the individuals and their environments that could not be covered in other ways, and (b) to complement with objective data the information about aspects that have been covered only with subjective data" (p. 102). After having received permission from the relevant legal authorities, the following national and local register data were collected:

- *Obstetric records* for those participants who were born in the county where the IDA investigations took place. The total population consisted of those 1393 persons, who at least once during elementary school years participated in the investigations, of which 930 (476 boys and 454 girls) were born in the county during the relevant years 1954, 1955 (the overwhelming majority of them), and 1956. Delivery records were found for 920 individuals (the dropouts were 5 girls and 5 boys, respectively). Among the vast amount of data collected were length and weight of birth, gestation time, and clinical evaluation of the newborn. For more information, see Lagerström, Nyström, Bremme, Magnusson, and Eneroth (1985).
- *National registration* gave information about the family structure and its changes during the participants' childhood (e.g., one-two parent family, number of siblings, divorce, death, foster care, and geographical mobility) (see Bergman, Magnusson, Reichel, & Jakobsson, 1984).
- *Registered alcohol abuse information* was collected from all possible local and national sources in Sweden (the police, the social authorities, and open and closed psychiatric care records) and covered the age period from 15 to 24 (see Andersson, Bergman, & Magnusson, 1989; Magnusson, 1988).
- *Registered criminality* was collected from all official local and national registers (the police, the social authorities, and child welfare authorities) covering the time period from birth to age 35. Among aspects that were collected are age at first conviction, judgments, and different types of crimes (see Magnusson, 1988; Stattin & Magnusson, 1991; Stattin, Magnusson, & Reichel, 1989).

- *Information about in-patient and out-patient psychiatric care* was obtained from the registers of all psychiatric hospitals and clinics in Sweden. The time period was birth to age 24. The psychiatric records have been classified according to DSM III by a trained psychiatrist, and the reliability of the classification was investigated for a subsample with good results (for more information, see Magnusson, 1988; von Knorring, Andersson, & Magnusson, 1987).
- *Registration for military service* was obligatory for almost every man of age 18 at the time when the males of the main group was at that age. This registration involves both a medical and a psychological part and data from those investigations have been obtained for use in the IDA program (see Magnusson, Dunér, & Zetterblom, 1967).

For a detailed description and discussion about the use of official records as data sources in the IDA research program, see Magnusson (1988).

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Appendix

Data collections that are not represented in the master files

Structured personal interview with those students in the main group who dropped out of upper secondary school (high school)

The interview that contained 48 questions was performed in the first, the second and the third year in upper secondary high school. The interview questions could be grouped into 5 domains:

1. School
2. Peers
3. Personal issues
4. Home
5. Plans

Four experienced interviewers (three psychologists and one social worker) performed the interviews. The possible interviewees were the 197 students who dropped out of school during the upper secondary high school years (135 the first year, 48 the second year, and 14 the third year). The participation in the interviews during the three years was very high, about 94%. The findings from the interviews are accounted for in Beckne (1981, 1995).

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Intensive study in grade 5 of a sociometrically selected subsample from the main group with focus on the associations between peer status and extrinsic and intrinsic adjustment

Selection of the subsample in grade 3 and 4: The selection of the peer status groups for the intensive study was made from sociometric tests given to all children in the main group of the IDA research program during two consecutive years; positive nominations and rank ordering at the end of grade 3 (mean age 10 years) as part of the first main data

collection 1965 (see above) and positive nominations at the end of grade 4 (mean age 11 years). *The grade 4 positive nominations* measure was the same instrument as was given at grade 3, except that it only involved peer preferences for play at school and, thus, excluded play during leisure time.

Through a criteria based procedure three groups of each gender with different peer status were selected: one with extremely low peer status; one with ordinary peer status; and one with extremely high peer status. As each group consisted of 15 participants, there was a total number of 45 participants for each gender.

The data collection in grade 5: In grade 5 (mean age 12 years) different aspects of the life situation, particularly in school and at home, were examined in an intensive study specially designed for the selected sample of 45 boys and 45 girls. Interviews with parents, teachers, and the children themselves, standardized achievement tests (in grade 6), and medical examinations were used. The professional interviewers were well acquainted with the interview forms, the scales, and what data was needed (through, for example, training interviews), but were unaware of the peer status groups and the purposes of the study.

- *The interviews with the father and mother:* These interviews were made independently of each other and aimed to collect information about the adjustment of the child at home, at school, during leisure time, and with peers (both the present and earlier adjustment). The interviews were semi-structured, and the interviewer completed a form directly after every interview.

- *The interview with the teacher:* This interview aimed to collect information about the adjustment of the child in the class and at school, the teacher's own appreciation of the child and also, although to a lesser degree, the teacher's judgement of the parents and the home situation of the child. The interviews with the teachers were more structured than the interviews with the parents, as the information concerned the pupils and their parents rather than the teachers themselves. For example, the interview form was used and filled in during the interview.

- *Direct observations by the teacher:* The teachers were instructed by an experienced school psychologist to do observations of the children participating in the study during a period of about one month. The observations aimed at measuring the behavior of the child in school particularly in different peer interaction aspects and behavioral categories (both with the child as agent and the peers as agents).

- *The self-report interview:* This interview was semi-structured with a form that the interviewer filled in. As help, the child was given pictures illustrating different social situations that are relevant for children of this age (for example a

group of school children with one child outside of the group).These pictures were connected to the interview questions and used directly and openly in the questioning. Interview scales and categories were constructed to measure different aspects of the child's social life, such as relations to class peers, to other peers, and to the teacher and the child's experience of the school situation in general.

- *Medical examination:* The school doctor conducted a medical examination concerning physical status that was supplemented information from earlier examinations (from the child's health card in the school). The information included height, weight, diseases, general physical status, physical or mental disorders, different school problems, and special examinations (as, for example, by the school psychologist) or special arrangements in or outside school.

For more information about the selection of the peer status groups, the data collections and research findings, see Adebäck (1969a, 1969b) for a detailed account; also Magnusson (1988), Magnusson et al. (1975), Zettergren (1977, 1979, 1980, 2001), and Zettergren and Dunér (1979).

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