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Materialien aus der Bildungsforschung

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The Development of Formal Thought

A Manual Including Measurement Procedures and Descriptive Analyses

Study „Individual Development and Social Structure"
Data Handbooks Part 2

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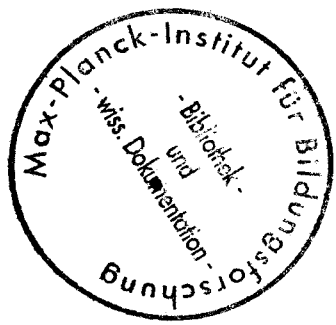

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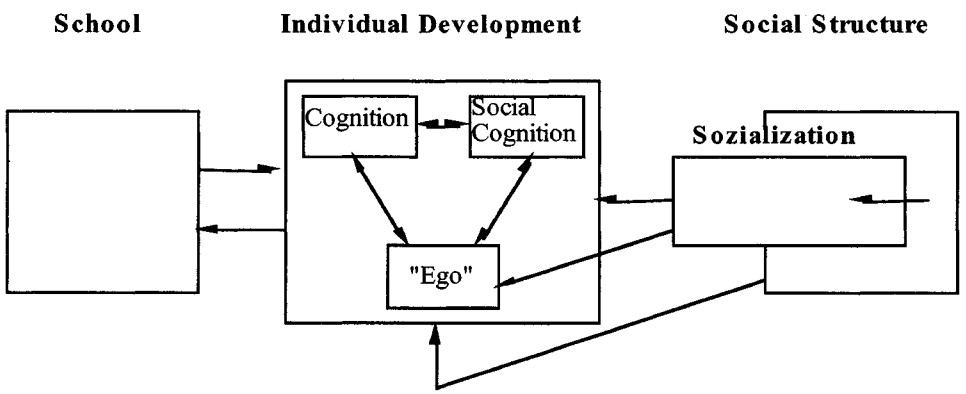
0. Introduction

0.1. Background of the study

The data of this handbook are part of the longitudinal study "Individual Development and Social Structure" (IDSS), that was taken up in 1976 (Edelstein, Keller & Schröder, 1990).
The aim of the study was to analyze the developmental trajectories of Icelandic children in cognition (Schröder 1989) and social cognition (Keller & Edelstein, 1991; Keller & Edelstein, 1993) and to investigate personality dimensions and ego resources (Hofmann, 1991) against the background of socialstructural constraints in a society undergoing an accelerated modernization process (Björnsson, Edelstein & Kreppner, 1977).

Figure A specifies the hypothetical relationships between the psychological and the sociological dimensions.

Figure A Hypothetical model of developmental relationships



0.2. Measurement Design of the IDSS- Study

The first wave of data collection took place in 1976/77 in Reykjavik. The children attended the first grade of primary school and were between 7 and 8 years old. The following measurement occasions including the Reykjavik sample took place at the ages of 8, 9, 12, 15, 17, 19 and 22 years.
A sample from three rural communities was measured two years after the investigation of the urban sample (Tab. A) successively.

Table A Measurement occasions in the IDSS-Study

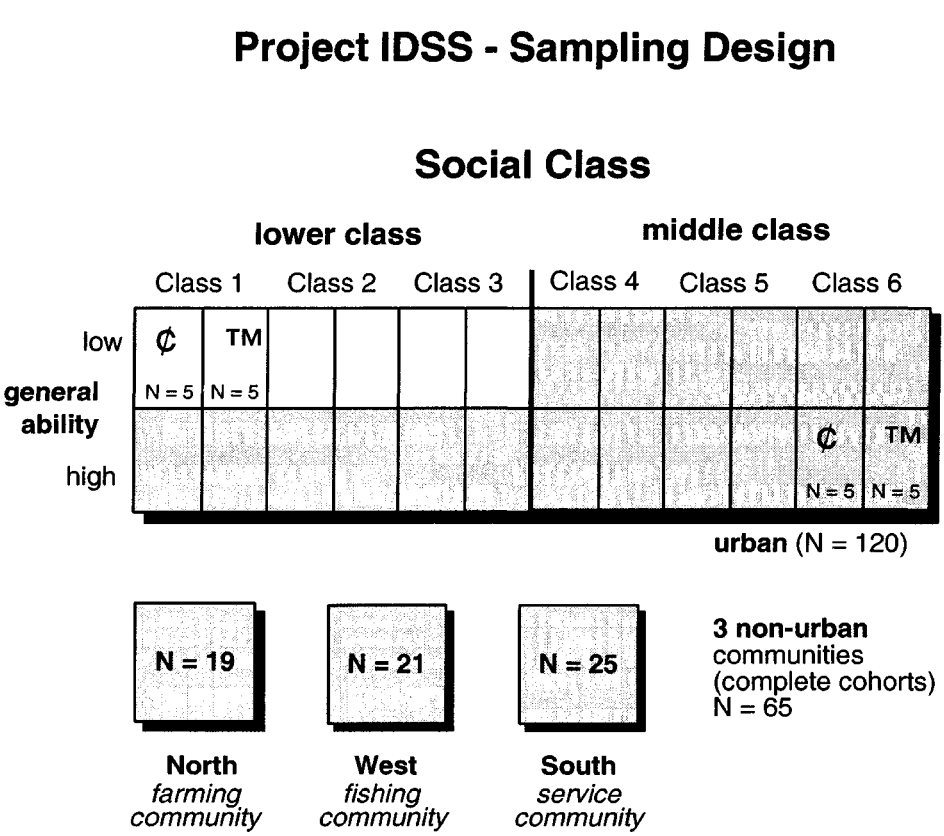
	Urban Sample	Rural sample	Age	Grade
Wave 1	1976/77	1978	7	1
Wave 2	1977/78	-	8	2
Wave 3	1978/79	1980	9	3
Wave 4	1981/82	1983	12	6
Wave 5	1984/85	1986	15	9
Wave 6	1986/87	-	17	-
Wave 7	1988/89	-	19	-
Wave 8	1991/92	1991/92	20 (rur) 22 (urb)	-

0.3. Sampling Design

The population, from which the Reykjavik sample (N=121) was selected, had been stratified according to three analytically relevant dimensions:
1) according to the children's sex;
2) according to the social status of the parents as an indicator for developmentally advantageous or disadvantageous socialization and lifeworlds of children and
3) according to general ability level (as assessed by teachers) at the onset of schooling.

An additional sample (N = 65) includes the entire birth cohorts of three rural communities in Iceland, assumed to represent different contexts of socialization and modernization in three typical lifeworlds within the Icelandic culture: (1) a rural stray settlement, (2) a farming and service village and (3) a fishing village. This second sample should make it possible to investigate individual development against the background of different ecologies.

Figure B **Sampling Design of the longitudinal study**



The sampling design of the longitudinal study was introduced with the aim of maximizing interindividual variance. Individual differences are taken to derive from competence level at the onset of school, to children's sex, to socio-economic status of parents and to the social and cognitive ecologies of different lifeworlds.

The three dimensions according to which the urban sample was stratified were treated as factors in a quasi-experimental design. Although general ability level constituted a systematic stratifying dimension in the urban sample only, it could be derived retrodictively also for the rural children. Because the rural samples formed entire birth cohorts, the socio-economic status of parents is not equally distributed.

Competence level

During the first two weeks after school entrance teachers in all first grades of the city of Reykjavik were asked to nominate three children in the upper third, three children in the middle third and three children in the lower third of the general ability distribution in their particular classes. Subsequently, the middle third was discarded from the study. In the absence of

information about the school entrants, the teachers grounded their assessments on the cognitive, verbal and social competences of the children, as an informal inquiry showed.The children were assigned for each of the social classes to either "high competence" or "low competence".

The teachers' judgments can be considered as a global rating of the subjects' competence level at the onset of the longitudinal study, which was cross-validated with the cognitive and socio-cognitive data of Wave 1. The predictive power of the teacher rating proved considerable. The regression on a summary measure of cognitive competence about six month later produced a correlation coefficient of r= .74.

The 'competence level' was introduced to contrast differential impacts of this variable on the individual trajectories of the children and - supposing decelerated developmental speed within the 'lower competence' sample - to focus developmental processes with a finer grade.

Social class

To determine the social class of the parents the status measures of Björnsson, Edelstein & Kreppner (1977, S. 29ff.) were used. Six classes were distinguished, whose relative proportions of the Icelandic population are shown in brackets:

1) Unskilled workers (26,1%);
2) Skilled workers and craftsmen (31,3%);
3) unskilled and skilled clerical workers and civil servants (10,0%);
4) technical or teaching professions, lower managerial (14,8%);
5) employers, businessmen or higher managerial professions (9,9%);
6) academic professions including secondary teachers, artists and leading occupations in the political or administrative system (7,8%)[1].

Attrition rate: Despite the wide long time range of the study (8 years from the first to the fifth wave) the drop out rate is rather small; it amounts to less than 10 % for the urban and less than 5 % for the rural sample.

[1] Population percentages from census data in the Handbook of statistics of Iceland.

0.4. Material and Measures

In order to measure the development of formal operations, four 'classical' concepts - multiple compensation (conservation of volume, Inhelder & Piaget, 1958), syllogistic reasoning, the pendulum task (Inhelder & Piaget, 1958), and isolation of variables (Kuhn & Brannock, 1977) - were investigated at the ages of nine, twelve and fifteen years. At the age of seventeen, the urban sample was reassessed with the task battery used at age 15 two years earlier.

Further, three additional formal operational tasks - correlation, combination and proportion - were administered in Wave 5 and Wave 6 (urban sample only).

In the following, only the task material, investigation procedure and descriptive statistics for the measurement of three 'classical' concepts – multiple compensation, the pendulum task and the isolation of variables - are documented, information about the investigation of syllogistic reasoning is included in a separate volume of the Data Handbook. Within the framework of the present measurement design, the development of formal operational reasoning can be reconstructed across a time span of six years for the rural and across eight years for the urban sample.

In Table B, the instruments mentioned above are ordered according to measurement occasions. For every task both judgment and justification were assessed.

The tasks for repeated measurement were selected for age adequate application. Wherever possible contextual variations (variations in presentation, in content, in application contexts or in the procedure) were introduced. Tasks were coded dichotomously or structurally (Lou, 1986). Thus, task performance was coded in agreement with theory, making the data generated in the study directly amenable to statistical analyses instead of using dichotomization at the median.

Table B Overview of formal operational concepts investigated

	Number of tasks administered at the age of			
Formal operational concepts	*9*	*12*	*15*	*17*[1]
Multiple compensation	5	6	4	4
Syllogism	36 / 16[2]	12	12	12
Pendulum	1[3]	1	1	1
Isolation of variables	0	4	4	4

[2]Only one section of the syllogistic task battery was administered to the rural children.

[3] Only the urban sample was measured.

Table C Measures and sources of variance within concepts

Concepts	Sources of Variance
Multiple compensation	Presentation, Performance modalities
Syllogism	Content
Pendulum	--
Isolation of variables	Content

0.5. Aim of the Data Handbook

The data handbook describes the cognitive concepts and the instruments included in the longitudinal study, documents the measurement procedure and the method applied as well as the results of statistical analyses.
The data handbook provides a quick and systematic overview in the domain of formal operations for those interested in the IDSS-project. Further, it provides an orientation for the planning of investigations and makes a descriptive comparison of different studies focussing on Piagetian concepts.

0.6. Contents of the Data Handbook

This is the first of three data handbooks covering formal operations. It includes three concepts: multiple compensation, the pendulum and isolation of variables.
Every chapter starts with a introduction to the specific concept, then describes measures, materials and the scoring procedures utilized in the study; finally a description of the testing procedure and the instructions is presented.
Information concerning the electronic storage of the data is limited to a listing of the English variable names and their labels.
Results are documented separately for each measurement occasion: only descriptive statistics (cell frequencies) are reported.

1. Multiple compensation (equivalence between displaced volumes)

1.1. Description of the concept

A thorough description of the concept of equivalence between displaced volumes and the research arrangement for the examination of this concept can be found in Inhelder & Piaget (1958). The children are presented with a test arrangement consisting of two glass containers of equal or different sizes, about three quarters full of water, and with two objects of identical volume, which contrast either in form or in weight. One of these objects is submerged in the first container, upon which the water level rises. Following this demonstration, the child is asked to predict how much the water level will rise when the second object is submerged, and has to verify this hypothesis experimentally.

In contrast to the simple conservation tasks, which concrete-operational children can already master without effort, the tasks testing the equivalence of volumes can be seen as a special type of volume invariance task. These tasks not only presume that the child can imagine the preservation of the volume of a submerged, fixed body, but "also and above all the invariance of the water displaced by this submersion" (Inhelder & Piaget 1958, p. 326). We are thus dealing with a type of reasoning that can in no way be reduced simply to the child's ability to preserve attributes, an ability that is typical for concrete thinking.

The child's acquisition of concrete-operational conservation is limited to the ability to determine and explain the identity (or equivalence) of a distinctive object across spatial and temporal transformation. In this process, the children present the following types of arguments: identity, compensation, and/or reversibility. Tasks in multiple compensation transcend these kinds of conservation concept in that the children must judge the equivalence between the displaced volumes as well as the simple conservation of the submerged object. In addition, the children must be able to connect and coordinate both

kinds of equivalence relations with one another; independent of how the variable factors (such as the weight or form of the objects to be submerged) are arranged, the children must trace these equivalence relations in general form back to the law of water displacement of non-compressive objects. According to this physical law, the volume of the submerged body corresponds to that of the displaced water.

Inhelder and Piaget (1958) identify four different developmental phases in the acquisition of the concept of multiple compensation. The task design of this investigation is particularly concerned with the arguments that correspond to the fourth developmental stage. The authors describe the fourth phase as "immediate discovery and deduction of the law of water displacement as well as composition solely from the volume." This description takes on particular significance in light of the statements of those children who approach the problem hypothetically and deductively rather than through empirical induction and analogy. A level-four child gave one of the following responses to the question whether the water would rise to the same level when a heavier body was submerged than the lighter, but same-sizes object already submerged: "In general it is the volume, so it will be the same" or "yes it's heavier, but I think that the water level will be the same. The weight doesn't mean anything. The object will sink to the bottom, but when it's there it won't matter if it's heavy or not". According to Inhelder and Piaget (1958), "the concept of volume appears at the end of a more or protracted long process of differentiation, while in the fourth phase the concept is set from the very beginning and immediately grasped as the reason for the phenomena to be explained".

1.2. Description of the measures: Procedure and material

To measure the concept of multiple compensation an experimental design similar to the one described by Piaget and Inhelder (1975) was used. A total of four versions of the experiment were performed, each of which was varied according to the physical dimension (the form or the weight of the submerged object was different) or the system of reference (different-sizesd containers or different water levels).

The following types of tasks were used:

1) different forms of the objects to be submerged (with the same volume), while the containers and the water level (3/4) remained the same,

2) different weights of the object to be submerged (with the same volume), while the containers and the water level (3/4) remained the same,

3) different-sizesd containers, while the smaller container was filled to the brim, and the objects to be submerged were of equal weight and form,

4) different-sizesd containers and different weights of the objects to be submerged, while the form of the objects remained the same.

The concept of multiple compensation was measured at the ages of nine, twelve, fifteen and seventeen years.

The tasks did not only vary in the physical dimensions, but also in familiarity of both objects and contexts and in their mode of presentation. Additionally, some questions concerning related to relation were asked. Since types of task as well as educational questions differ according to the ages of the children examined, they will be presented separately for each measurement point. Task material and presentation were the same for the urban and the rural sample.

1.2.1. Procedure and material at age nine (Third measurement occasion)

For the examination of the nine year olds five tasks were used, which were designated by the numbers 1-5. Two dimensions were varied across the tasks: the physical property and the familiarity of objects. Varying the physical property, three of the four task types presented above were used:

- In task 1 and 4, the two objects to be submerged differed in form.
- In task 2 and 5, the two objects to be submerged differed in weight.
- In task 3, two containers of different sizes were presented to the children.

Additionally, the familiarity of the objects presented was varied. In task 1 and 5 the content was formal (glass beakers, clay balls), in task 2, 3 and 4 it was experiential (toy bathtubs, plastic eggs with drawings of men on them).

The order of presentation was as follows:

Task 1: Formal content - different form

Task 2: Experiential content - different weight

Task 3: Experiential content - different sizes of containers

Task 4: Experiential content - different form

Task 5: Formal content - different weight

The exact procedure was as follows:

Task 1: Two glass beakers (12 cm high, 5 cm in diameter), about half-filled with water, and two identical clay balls are put on a table in front of the child.

Investigator (I): "See, here we have identical beakers and clay balls, right?"

If the child objects she is allowed to add some water or clay until she is convinced. Then the child has to put one of the clay balls into one of the beakers and is asked about the effect on the water-level. Subsequently, I transforms the second clay ball into a flat pancake and asks: "See, now I change the ball into a pancake. What do you think will happen with the water, if I put the pancake into the other beaker? Do you think it will go higher, lower or equally high as in this (the first) beaker? Why do you think so?"

Task 2: Two identical toy bathtubs (25 cm long and 12 cm wide) with two marks on the inside (two short, parallel horizontal lines) are presented. A small doll is sitting in each of the tubs and the water level is up to the lower mark. I says:"Look, here we have two identical dolls or children sitting in identical bathtubs, and the water in both is equally high, i.e. up to mark one." Subsequently, two plastic eggs of different weight that are painted as little men, are introduced into the experiment. "Now let us pretend that we want to play with these eggmen." The child is asked to handle both objects to recognize the weight difference between them. If she fails to notice the difference in weight, this was pointed out by the experimenter.

The child has to put the lighter egg into one of the bathtubs, and her attention is drawn to the rising of the water to the higher mark. Subsequently, I asks:

"Now what do you think will happen to the water-level in the other tub if I put the blue egg (the heavier) there? Do you think the water level will rise more in this tub or in that one, or will it rise the same in both? Why do you think so?"

Task 3: The child is shown two bathtubs of different sizes and two identical rubber balls. I says: "Let us pretend that both tubs are filled with water completely to the top and then we put these balls into each of them. Do you think more water will be spilt from this big bathtub or this small one or do you think the same amount will be spilt from both?" Thus in this task no water was actually poured into the bathtubs, the child having to imagine the procedure.

Task 4: Two identical bathtubs and dolls (the same as in task 2) are put in front of the child with the water level to the first mark. Instead of the two equally large plastic "eggmen" differing in weight, two identical clay balls are used. After the first ball has been put into one of the tubs, the experimenter changes the form of the other one into a "fish" and asks: "Now what do you think will happen to the water level in the other tub, when I put this "clay fish" here? Do you think the water will rise more in this tub or in that one, or will it rise the same in both? Why do you think so?"

Task 5: Two identical free standing measuring glasses half-filled with water (20 cm high, 3 cm in diameter) are put in front of the child. Then the child is given to handle

two thin black-painted tubes, equal in sizes but different in weight (chemical tubes, stuffed with clay vs. metal and closed with a prop). A wire is wound around the tubes, to make it possible to lower them into the measuring glass without breaking or splashing. The procedure is identical to that in task 2. When the lighter tube has been lowered into either glass by the child, she has to mark the height with a rubber band and is then asked if the water will rise more, less or the same if the other tube is put into the second glass and why.

1.2.2 Procedure and material at age twelve (fourth measurement occasion)

In the experiment with the twelve year olds six tasks were used, which varied in the physical dimension, in their mode of presentation and in the familiarity of task context. The tasks are designated by the numbers 1, 5, 6, 11, 15 and 16.

In tasks 1, 5 and 6 the context was formal and the test was presented experimentally, thus the child can handle and manipulate the objects by himself/herself.

In contrast tasks 11,15, and 16 were presented verbally and pictorially, and the task content was experiential. The task presentation was as followed:

Task 1: formal context/ experimental presentation/ different forms of objects

Task 5: formal context/ experimental presentation/ different weights of objects

Task 6: formal context/ experimental presentation/ different sizes of containers.

Task 11: Experiential context/ verbal-pictorial presentation/ different forms of objects

Task 15: Experiential context/ verbal-pictorial presentation/ different weights of objects

Task 16: Experiential context/ verbal-pictorial presentation/ different sizes of containers

Task 1 and 5 used in the formal condition corresponded to tasks 1 and 5 described for the nine year olds.

Task 6 was as follows:

Two beakers of unequal sizes and two black eggs of similar form and weight are presented to the pupil. Both beakers are filled with water up to the rim and one of the

eggs is put into the bigger beaker, its water level rising so that water flows out. Subsequently, the child is asked:"What do you think will happen if we put the other egg into this (smaller) beaker? Do you think more or less water will flow out of it or the same as from the other beaker? Why do you think so?"

Task 11: I says to the child: "Look, before we start, I will tell you about some party games which children of your age played. The child having the party (Siggi/Sigga) made his/her friends solve some problems." I points to picture I, which shows two equally sizesd glasses half-filled with soft drink and two hubba-bubba chewing gums of identical form and sizes. The I continues:

"First he/she poured soft drink into two glasses of equal sizes and put a pack of ´Hubba Bubba´ into one of the two glasses and look - the surface of the soft drink got higher." I points to the left part of picture II where the two glasses are shown after the first chewing gum has been put into one of them.

"Then we come to the problem: The one, who can put this "Hubba Bubba" into the other glass and make the soft drink surface rise higher there gets a reward, one soft drink and a pack of chocolate."

Siggi´s/Sigga´s friends divided themselves into two groups:

I points to the right part of the drawing, where both groups of children are shown.

I points to the group at the top of the picture "These said: 'No, the same will happen as in the other glass, it is not possible to make the surface of the soft drink become higher'".

I points to the second group, "These said: 'Yes, if we change the form of the chewing gum into a ball, then the surface of the soft drink will become higher.'

Which group do you think was right? Why? How do you know?"

Task 15: The problem posed by Siggi /Sigga in this task is equivalent to the problem presented in Task 11 apart from the objects to be submerged:

In this task two matchboxes are to be put into the glasses containing soft drink in such a way that differing water levels result. Again, the children form two groups, exchanging contrasting opinions concerning the task. The first group thinks that a

solution to the problem is impossible, the second group proposes to charge one of the match boxes with clay to achieve a higher rise of the water level. The subject has to decide which of the groups is right, while being shown two drawings of similar content as presented in Task 11.

Task 16: The third time, Siggi/Sigga uses two glasses of different sizes filled upto the rim and two match boxes of equal weight. Having submerged one of the matchboxes in the bigger glass, the children are told to predict the effect of putting the second box into the smaller glass: They have to state whether the amount of soft drink flowing over increases, decreases or remains the same in comparison to the amount risen in the bigger glass. One part of the children considers the amounts of soft drink to be identical compared to the other part holds the amount of the small glass to be larger. Again the child has to judge which of the two opinions is the correct one. Two drawings were presented in this task.

1.2.3. Instruments and material at age fifteen (fifth measurement occasion)

In the examination of the fifteen year old pupils, four task types were used, which differed only in physical dimension. The tasks designated by the numbers 1, 5, 6 and 7 were presented experimentally. Only non-experiential material was used. The order of presentation was as follows:

Task 1: Different forms of objects presented

Task 5: Different weights of objects presented

Task 6: Different sizes of containers

Task 7: Both different sizes of containers and different weights of objects

Procedure and material for tasks 1, 5, 6 corresponded to those used in tasks 1, 5 and 6 as described for the twelve year olds' experimental session with children.

Task 7: A beaker and a pot both filled to the rim and two equally sizesd tubs of different weight are presented to the child, who is to handle the heavier tub. Subsequently, it is submerged in the beaker, so that it overflows.

I raises the lighter tub to the rim of the pot and asks:

"Do you think that more water, less water or the same as from the beaker will flow out of the pot, if I put the lighter tube into the pot? How do you know that? Can you explain it?"

In addition to the tasks presented, the children had to answer six questions altogether, concerning school experience.

1. The first question preceded the experiment. It was asked while the child was shown the experimental design. The I asked if the child remembered the material to be used in the experiment ("Do you remember seeing this before? Do you remember, what was the matter ?").

The other questions were presented after task presentation.

2. The child was asked if he/she remembered something learned at school that was similar to the problems dealt with in the experiments ("Do these tasks remind you of something, that you learned at school sometime?").

3. If the child affirmed the preceding question, he/ she was asked in which subject what he remembered was dealt with ("In which subject did you learn this?") and

4. in which class they had been dealt with ("Do you remember the time, when you learned this ?").

5. Finally, the pupils had to state if the school in which they had learned the corresponding topic was identical to the school presently attended ("In which school did this happen? Is this the same school you attend at present?"), and

6. The children were asked for the name of the school.

1.2.4. Instruments and material at age seventeen (sixth measurement occasion)

Task order, task presentation and the material used corresponded to the procedure described for the fifteen year olds.

The questions mentioned above were asked likewise.

1.3. Procedures and instructions for experimental tasks

The child observed the experimental manipulation of the materials described above. Throughout this process the investigator questioned the child if he or she understood the presentation of the task. Task 1 will serve to exemplify the testing procedures and instructions.

The investigator (I) forms the clay into two balls of the same sizes and says to the child (S):

- "Here are two balls of clay. Each ball is made out of the same amount of clay. The two balls are the same."

After this presentation, the I ascertains the subject's understanding with the question:

- "Does this ball have the same amount of clay as the second ball, or does one ball have more clay?"

If the child is able to compare the amounts and conclude that they are the same, the I starts the actual experiment. In case the child notices differences between the amounts, the balls are reproportioned until he/she agrees with the quantitative correspondence between the balls. At this point the I lets one ball sink into the water of the first container and asks what has happened to the water level. The I then takes the other ball and rolls it into a pancake-like shape and comments:

- "Look what I'm doing here. I'm making the ball into a pancake."

After the object has been transformed in front of the child, the I holds the pancake in front of the second container and asks:

- "What do you think will happen when I let the long piece of clay sink into the water (points to the second container)? Do you think that the water level will rise just as much or more than in the other container?"

- "How can you explain that to yourself?"

1.4. Scoring instructions and coding rules

The children's responses were recorded in the following way:

First a so-called behavior score was assigned to correspond to the children's judgment of the test question ("The water will rise to the same level" - "The water level will be higher with the pancake" - "The water level will be lower with the pancake"). Information about the type of judgement given by the child was stored under the variable names VOC. Second the type of responses were coded as to whether conservation was correctly demonstrated or not; the adequacy of jugdment was stored under the variable names VOA. Finally the children's reasons for their judgment were noted. The children's explanations of the judgments given were termed appropriate in the sense of a formal-operational solution to the problem if their arguments demonstrated that they had mastered the task in a deductive way and by including a generalized concept of volume equivalence. In these cases the children's reasons included some of the following: "The form of the clay doesn't influence the water level because it always has the same volume" or "the amount of room that the clay needs in the water is always the same, whether it's round or long."

The children's explanations were termed inappropriate when the judgment was incorrect or when the reason given did not correspond to the types of argumentation listed above. The children either gave responses impossible to code like "I'm not sure" or "I have heard it," or their argumentations corresponded to a preo-perational or concrete-operational developmental level, such as "it's clear that the water will rise more with the hot dog because it's longer than the ball" or "when I put the hot dog on its side on the bottom, then the water level is the highest because the hot dog pushes away the most water." Information about the children´s justifications were stored under variable names VOB.

1.5. List of variables

1.5.1. Variables at age nine (third measurement occasion):

VOA 301	Adequacy of judgment (correct/incorrect)/ formal material/ different form of objects
VOA 302	Adequacy of judgment/ experiential material/ different weight of objects
VOA 303	Adequacy of judgment/ experiential material/ different sizes of containers
VOA 304	Adequacy of judgment/ experiential material/ different form of objects
VOA 305	Adequacy of judgment/ formal material/ different weight of objects
VOB 301	Explanation (correct/incorrect) / formal material/ different form of objects
VOB 302	Explanation / experiential material / different weight of objects
VOB 303	Explanation/ experiential material/ different sizes of containers
VOB 304	Explanation/ experiential material/ different form of objects
VOB 305	Explanation/ formal material/ different weight of objects
VOC 301	Type of judgment (equal/ higher/ lower)/ formal material/ different form of objects
VOC 302	Type of judgment/ experiential material/ different weight of objects
VOC 303	Type of judgment/ experiential material/ different sizes of containers
VOC 304	Type of judgment/ experiential material/ different form of objects
VOC 305	Type of judgment/ formal material/ different weight of objects

1.5.2. Variables at age twelve (fourth measurement occasion):

VOA 401	Adequacy of judgment/experimental presentation/different form of objects
VOA 405	Adequacy of judgment/ experimental presentation/ different weight of objects
VOA 406	Adequacy of judgment/ experimental presentation/ different sizes of containers
VOA 411	Adequacy of judgment/ verbal and pictorial presentation/ different form of objects
VOA 415	Adequacy of judgment/ verbal and pictorial presentation/ different weight of objects
VOA 416	Adequacy of judgment/ verbal and pictorial presentation/ different sizes of containers
VOB 401	Explanation/ experimental presentation/ different form of objects
VOB 405	Explanation/ experimental presentation/ different weight of objects
VOB 406	Explanation/ experimental presentation/ different sizes of containers
VOB 411	Explanation/ verbal and pictorial presentation/ different form of objects
VOB 415	Explanation/ verbal and pictorial presentation/ different weight of objects
VOB 416	Explanation/ verbal and pictorial presentation/ different sizes of containers
VOC 401	Type of judgment/ experimental presentation/ different form of objects
VOC 405	Type of judgment/ experimental presentation/ different weight of objects
VOC 406	Type of judgment/ experimental presentation/ different sizes of containers
VOC 411	Type of judgment/ verbal and pictorial presentation/ different form of objects
VOC 415	Type of judgment/ verbal and pictorial presentation/ different weight of objects
VOC 416	Type of judgment/ verbal and pictorial presentation/ different sizes of containers

1.5.3. Variables at age fifteen (fifth measurement occasion)

VOA 501	Adequacy of judgment/ different form of objects
VOA 505	Adequacy of judgment/ different weight of objects
VOA 506	Adequacy of judgment/ different sizes of containers
VOA 507	Adequacy of judgment/ different sizes of containers and different weight of objects
VOB 501	Explanation/ different form of objects
VOB 505	Explanation/ different weight of objects
VOB 506	Explanation/ different sizes of containers
VOB 507	Explanation/ different sizes of containers and different weight of objects
VOC 501	Type of judgement/ different form of objects
VOC 505	Type of judgment/ different weight of objects
VOC 506	Type of judgment/ different sizes of containers
VOC 507	Type of judgment/ different sizes of containers and different weight of objects
VOREM 501	Recognition of experimental design
VOREC5	Task recognition from school
VORSUJ5	School subject
VOWHN5	Class
VOSCH5	Same/ different school
VONR5	School number

1.5.4. Variables at age seventeen (sixth measurement occasion)

VOA 601	Adequacy of judgment/ different form of objects
VOA 605	Adequacy of judgment/ different weight of objects
VOA 606	Adequacy of judgment/ different sizes of containers
VOA 607	Adequacy of judgment/ different sizes of containers and different weight of objects
VOB 601	Explanation/ different form of objects
VOB 605	Explanation/ different weight of objects
VOB 606	Explanation/ different sizes of containers
VOB 607	Explanation/ different sizes of containers and different weight of objects
VOC 601	Type of judgement/ different form of objects
VOC 605	Type of judgment/ different weight of objects
VOC 606	Type of judgment/ different sizes of containers
VOC 607	Type of judgment/ different sizes of containers and different weight of objects
VOREM 601	Recognition of experimental design
VOREC6	Task recognition from school
VORSUJ6	School subject
VOWHN6	Class
VOSCH6	Same/ different school
VONR6	School number

1.6. Assessment of the nine year old children

Urban sample

Table 1
Multiple compensation:
Solution probabilities at age 9
Urban sample

1 a). Adequacy of judgment

Variable	Task		N
VOA301	Different form of objects/ formal material	0.649	114
VOA302	Different weight of objects/ experiential material	0.316	114
VOA303	Different sizes of containers/ experiential material	0.351	114
VOA304	Different form of objects/ experiential material	0.719	114
VOA305	Different weight of objects/ formal material	0.289	114

1 b). Justification

Variable	Task		N
VOB301	Different form of objects/ formal material	0.307	114
VOB302	Different weight of objects/ experiential material	0.263	114
VOB303	Different sizes of containers/ experiential material	0.174	114
VOB304	Different form of objects/ experiential material	0.289	114
VOB305	Different weight of objects/ formal material	0.289	114

1 c). Type of judgment

Variable	Task	equal	higher	lower	N
VOC301	Different form of objects/ formal material	0.649	0.096	0.254	114
VOC302	Different weight of objects/ experiential material	0.316	0.684	0.000	114
VOC303	Different sizes of containers/ experiential material	0.351	0.246	0.404	114
VOC304	Different form of objects/ experiential material	0.719	0.132	0.149	114
VOC305	Different weight of objects/ formal material	0.289	0.711	0.000	114

Table 2
Multiple compensation:
Solution probabilities at age 9
by teacher rating
Urban sample

2 a). Adequacy of judgment

Teacher rating		high		low	
			N		N
VOA301	Different form of objects/ formal material	0.691	55	0.610	59
VOA302	Different weight of objects/ experiential material	0.473	55	0.169	59
VOA303	Different sizes of containers/ experiential material	0.436	55	0.271	59
VOA304	Different form of objects/ experiential material	0.745	55	0.625	59
VOA305	Different weight of objects/ formal material	0.436	55	0.155	59

2 b). Justification

Teacher rating		high		low	
Variable	Task		N		N
VOB301	Different form of objects/ formal material	0.364	55	0.254	59
VOB302	Different weight of objects/ experiential material	0.382	55	0.153	59
VOB303	Different sizes of containers/ experiential material	0.273	55	0.102	59
VOB304	Different form of objects/ experiential material	0.345	55	0.237	59
VOB305	Different weight of objects/ formal material	0.418	55	0.169	59

2) c). Type of judgment

Teacher rating	high				low			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC301	0.691	0.036	0.273	55	0.610	0.153	0.237	59
VOC302	0.473	0.527	0.000	55	0.169	0.831	0.000	59
VOC303	0.436	0.291	0.273	55	0.271	0.203	0.526	59
VOC304	0.745	0.073	0.182	55	0.695	0.186	0.119	59
VOC305	0.436	0.564	0.000	55	0.153	0.847	0.000	59

Table 3
Multiple compensation:
Solution probabilities at age 9
by gender
Urban sample

3 a). Adequacy of judgment

Gender		male		female	
Variable	Task		N		N
VOA301	Different form of objects/ formal material	0.656	61	0.642	53
VOA302	Different weight of objects/ experiential material	0.410	61	0.208	53
VOA303	Different sizes of containers/ experiential material	0.311	61	0.396	53
VOA304	Different form of objects/ experiential material	0.705	61	0.736	53
VOA305	Different weight of objects/ formal material	0.393	61	0.176	53

3 b). Justification

Gender		male		female	
Variable	Task		N		N
VOB301	Different form of objects/ formal material	0.361	61	0.245	53
VOB302	Different weight of objects/ experiential material	0.377	61	0.132	53
VOB303	Different sizes of containers/ experiential material	0.213	61	0.151	53
VOB304	Different form of objects/ experiential material	0.328	61	0.245	53
VOB305	Different weight of objects/ formal material	0.410	61	0.151	53

3 c). Type of judgment

Gender	male				female			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC301	0.656	0.098	0.246	61	0.642	0.094	0.264	53
VOC302	0.410	0.590	0.000	61	0.208	0.792	0.000	53
VOC303	0.311	0.295	0.393	61	0.396	0.189	0.415	53
VOC304	0.705	0.180	0.115	61	0.736	0.075	0.189	53
VOC305	0.393	0.607	0.000	61	0.176	0.830	0.000	53

Table 4
Multiple compensation:
Solution probabilities at age 9
by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

4 a). Adequacy of judgment

SES		low		high	
Variable	Task		N		N
VOA301	Different form of objects/ formal material	0.600	60	0.704	54
VOA302	Different weight of objects/ experiential material	0.283	60	0.352	54
VOA303	Different sizes of containers/ experiential material	0.383	60	0.315	54
VOA304	Different form of objects/ experiential material	0.733	60	0.704	54
VOA305	Different weight of objects/ formal material	0.300	60	0.278	54

4 b). Justification

SES		low		high	
Variable	Task		N		N
VOB301	Different form of objects/ formal material	0.233	60	0.389	54
VOB302	Different weight of objects/ experiential material	0.217	60	0.315	54
VOB303	Different sizes of containers/ experiential material	0.158	60	0.222	54
VOB304	Different form of objects/ experiential material	0.250	60	0.333	54
VOB305	Different weight of objects/ formal material	0.300	60	0.278	54

4 c). Type of judgment

SES		low			high			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC301	0.600	0.133	0.267	60	0.704	0.056	0.241	54
VOC302	0.283	0.717	0.000	60	0.352	0.648	0.000	54
VOC303	0.383	0.200.	0.417	60	0.315	0.296	0.389	54
VOC304	0.733	0.167	0.100	60	0.704	0.093	0.204	54
VOC305	0.300	0.700	0.000	60	0.278	0.722	0.000	54

Table 5
Multiple compensation:
Solution probabilities at age 9
by social class in six categories
Urban sample

5 a). Adequacy of judgment

SES		low/low		low/high	
Variable	Task		N		N
VOA301	Different form of objects/ formal material	0.563	16	0.654	26
VOA302	Different weight of objects/ experiential material	0.250	16	0.346	26
VOA303	Different sizes of containers/ experiential material	0.438	16	0.385	26
VOA304	Different form of objects/ experiential material	0.688	16	0.846	26
VOA305	Different weight of objects/ formal material	0.313	16	0.308	26

5 a). Adequacy of judgment

SES	middle/low		middle/high		high/low		high/high	
Variable		N		N		N		N
VOA301	0.556	18	0.684	19	0.700	20	0.733	15
VOA302	0.222	18	0.368	19	0.350	20	0.333	15
VOA303	0.333	18	0.211	19	0.350	20	0.400	15
VOA304	0.611	18	0.579	19	0.700	20	0.867	15
VOA305	0.278	18	0.211	19	0.300	20	0.333	15

5 b). Justification

SES		low/low		low/high	
Variable	Task		N		N
VOB301	Different form of objects/ formal material	0.313	16	0.269	26
VOB302	Different weight of objects/ experiential material	0.250	16	0.269	26
VOB303	Different sizes of containers/ experiential material	0.125	16	0.154	26
VOB304	Different form of objects/ experiential material	0.188	16	0.308	26
VOB305	Different weight of objects/ formal material	0.313	16	0.346	26

Continuation

5 b). Justification

SES	middle/low		middle/high		high/low		high/high	
Variable		**N**		**N**		**N**		**N**
VOB301	0.110	18	0.263	19	0.400	20	0.533	15
VOB302	0.111	18	0.263	19	0.350	20	0.333	15
VOB303	0.167	18	0.158	19	0.250	20	0.267	15
VOB304	0.222	18	0.211	19	0.350	20	0.467	15
VOB305	0.222	18	0.211	19	0.300	20	0.333	15

5 c). Type of judgment

SES		low/low			
Variable	**Task**	**equal**	**higher**	**lower**	**N**
VOC301	Different form of objects/ formal material	0.563	0.125	0.212	16
VOC302	Different weight of objects/ experiential material	0.250	0.750	0.000	16
VOC303	Different sizes of containers/ experiential material	0.438	0.188	0.374	16
VOC304	Different form of objects/ experiential material	0.688	0.188	0.124	16
VOC305	Different weight of objects/ formal material	0.313	0.688	0.000	16

5 c). Type of judgment

SES	low/high				middle/low			
	equal	**higher**	**lower**	**N**	**equal**	**higher**	**lower**	**N**
VOC301	0.654	0.077	0.269	26	0.556	0.220	0.224	18
VOC302	0.346	0.654	0.000	26	0.222	0.778	0.000	18
VOC303	0.385	0.154	0.661	26	0.333	0.278	0.389	18
VOC304	0.846	0.077	0.077	26	0.611	0.278	0.111	18
VOC305	0.308	0.692	0.000	26	0.278	0.722	0.000	18

Continuation

5 c). Type of judgment

SES	middle/high				low/high			
	equal	higher	lower	N	equal	higher	lower	N
VOC301	0.684	0.105	0.211	19	0.733	0.000	0.267	20
VOC302	0.368	0.632	0.000	19	0.350	0.650	0.000	20
VOC303	0.211	0.316	0.473	19	0.400	0.250	0.350	20
VOC304	0.579	0.053	0.368	19	0.700	0.100	0.200	20
VOC305	0.211	0.789	0.000	19	0.300	0.700	0.000	20

5 c). Type of judgment

SES		high/high			
Variable	Task	equal	higher	lower	N
VOC301	Different form of objects/ formal material	0.733	0.067	0.200	15
VOC302	Different weight of objects/ experiential material	0.333	0.667	0.000	15
VOC303	Different sizes of containers/ experiential material	0.400	0.333	0.267	15
VOC304	Different form of objects/ experiential material	0.867	0.133	0.000	15
VOC305	Different weight of objects/ formal material	0.333	0.667	0.000	15

Rural sample

Table 6
Multiple compensation:
Solution probabilities at age 9
Rural sample

6 a). Adequacy of judgment

Variable	Task		N
VOA301	Different form of objects/ formal material	0.597	62
VOA302	Different weight of objects/ experiential material	0.274	62
VOA303	Different sizes of containers/ experiential material	0.371	62
VOA304	Different form of objects/ experiential material	0.758	62
VOA305	Different weight of objects/ formal material	0.323	62

6 b). Justification

Variable	Task		N
VOB301	Different form of objects/ formal material	0.258	62
VOB302	Different weight of objects/ experiential material	0.258	62
VOB303	Different sizes of containers/ experiential material	0.129	62
VOB304	Different form of objects/ experiential material	0.306	62
VOB305	Different weight of objects/ formal material	0.306	62

6 c). Type of judgment

Variable	Task	equal	higher	lower	N
VOC301	Different form of objects/ formal material	0.597	0.097	0.306	62
VOC302	Different weight of objects/ experiential material	0.274	0.710	0.016	62
VOC303	Different sizes of containers/ experiential material	0.371	0.226	0.403	62
VOC304	Different form of objects/ experiential material	0.758	0.113	0.129	62
VOC305	Different weight of objects/ formal material	0.323	0.629	0.048	62

Table 7
Multiple compensation:
Solution probabilities at age 9
by gender
Rural sample

7 a). Adequacy of judgment

Gender		male		female	
Variable	Task		N		N
VOA301	Different form of objects/ formal material	0.600	35	0.593	27
VOA302	Different weight of objects/ experiential material	0.371	35	0.148	27
VOA303	Different sizes of containers/ experiential material	0.429	35	0.296	27
VOA304	Different form of objects/ experiential material	0.771	35	0.741	27
VOA305	Different weight of objects/ formal material	0.457	35	0.148	27

7 b). Justification

Gender		male		female	
Variable	Task		N		N
VOB301	Different form of objects/ formal material	0.314	35	0.185	27
VOB302	Different weight of objects/ experiential material	0.343	35	0.148	27
VOB303	Different sizes of containers/ experiential material	0.143	35	0.111	27
VOB304	Different form of objects/ experiential material	0.371	35	0.222	27
VOB305	Different weight of objects/ formal material	0.429	35	0.148	27

7 c). Type of judgment

Gender	male				female			
	equal	higher	lower	N	equal	higher	lower	N
VOC301	0.600	0.057	0.343	35	0.593	0.148	0.259	27
VOC302	0.371	0.629	0.000	35	0.148	0.815	0.037	27
VOC303	0.429	0.286	0.285	35	0.296	0.148	0.556	27
VOC304	0.771	0.086	0.143	35	0.741	0.148	0.111	27
VOC305	0.457	0.457	0.086	35	0.148	0.852	0.000	27

Table 8
Multiple compensation:
Solution probabilities at age 9
by region
Rural sample

8 a). Adequacy of judgment

Community		North		West	
Variable	Task		N		N
VOA301	Different form of objects/ formal material	0.611	18	0.450	20
VOA302	Different weight of objects/ experiential material	0.222	18	0.200	20
VOA303	Different sizes of containers/ experiential material	0.444	18	0.250	20
VOA304	Different form of objects/ experiential material	0.722	18	0.650	20
VOA305	Different weight of objects/ formal material	0.333	18	0.200	20

8 a). Adequacy of judgment

Community		South	
Variable	Task		N
VOA301	Different form of objects/ formal material	0.708	24
VOA302	Different weight of objects/ experiential material	0.375	24
VOA303	Different sizes of containers/ experiential material	0.417	24
VOA304	Different form of objects/ experiential material	0.875	24
VOA305	Different weight of objects/ formal material	0.417	24

8 b). Justification

Community		North		West	
Variable	Task		N		N
VOB301	Different form of objects/ formal material	0.167	18	0.150	20
VOB302	Different weight of objects/ experiential material	0.222	18	0.150	20
VOB303	Different sizes of containers/ experiential material	0.167	18	0.005	20
VOB304	Different form of objects/ experiential material	0.278	18	0.150	20
VOB305	Different weight of objects/ formal material	0.333	18	0.150	20

8 b). Justification

Community		South	
Variable	**Task**		**N**
VOB301	Different form of objects/ formal material	0.417	24
VOB302	Different weight of objects/ experiential material	0.575	24
VOB303	Different sizes of containers/ experiential material	0.167	24
VOB304	Different form of objects/ experiential material	0.458	24
VOB305	Different weight of objects/ formal material	0.417	24

8 c). Type of judgment

Community		North			
Variable	**Task**	**equal**	**higher**	**lower**	**N**
VOC301	Different form of objects/ formal material	0.611	0.056	0.333	18
VOC302	Different weight of objects/ experiential material	0.222	0.722	0.066	18
VOC303	Different sizes of containers/ experiential material	0.444	0.222	0.333	18
VOC304	Different form of objects/ experiential material	0.722	0.056	0.222	18
VOC305	Different weight of objects/ formal material	0.333	0.611	0.056	18

8 c). Type of judgment

Community	West				South			
	equal	**higher**	**lower**	**N**	**equal**	**higher**	**lower**	**N**
VOC301	0.450	0.100	0.450	20	0.708	0.125	0.167	24
VOC302	0.200	0.800	0.000	20	0.375	0.625	0.000	24
VOC303	0.250	0.300	0.450	20	0.417	0.167	0.416	24
VOC304	0.650	0.200	0.150	20	0.875	0.083	0.042	24
VOC305	0.200	0.800	0.000	20	0.417	0.500	0.083	24

1.7. Assessment of the twelve year old children

Urban sample

Table 9
Multiple compensation:
Solution probabilities at age 12
Urban sample

9 a). Adequacy of judgment

Variable	Task		N
VOA401	Different form of object/ experimental presentation	0.775	111
VOA405	Different weight of object/ experimental presentation	0.486	111
VOA406	Different sizes of containers/ experimental presentation	0.495	111
VOA411	Different form of object/ verbal and pictoral presentation	0.766	111
VOA415	Different weight of object/ verbal and pictoral presentation	0.532	111
VOA416	Different sizes of containers/ verbal and pictoral presentation	0.505	111

9 b). Justification

Variable	Task		N
VOB401	Different form of object/ experimental presentation	0.486	111
VOB405	Different weight of object/ experimental presentation	0.477	111
VOB406	Different sizes of containers/ experimental presentation	0.291	110
VOB411	Different form of object/ verbal and pictoral presentation	0.766	111
VOB415	Different weight of object/ verbal and pictoral presentation	0.532	111
VOB416	Different sizes of containers/ verbal and pictoral presentation	0.505	111

9 c). Type of judgment

Variable	Task	equal	higher	lower	N
VOC401	Different form / experimental presentation	0.775	0.126	0.099	111
VOC405	Different weight / experimental presentation	0.505	0.477	0.018	111
VOC406	Different sizes / experimental presentation	0.495	0.225	0.279	111
VOC411	Different form / verbal and pictoral presentation	0.775	0.225	0.000	111
VOC415	Different weight / verbal and pictoral presentation	0.541	0.459	0.000	111
VOC416	Different sizes / verbal and pictoral presentation	0.541	0.171	0.288	111

Table 10
Multiple compensation:
Solution probabilities at age 12
by teacher rating
Urban sample

10 a). Adequacy of judgment

Teacher rating		low		high	
Variable	Task		N		N
VOA401	Different form / experimental presentation	0.684	61	0.870	50
VOA405	Different weight / experimental presentation	0.298	61	0.685	50
VOA406	Different sizes / experimental presentation	0.333	61	0.667	50
VOA411	Different form / verbal and pictoral presentation	0.684	61	0.852	50
VOA415	Different weight / verbal and pictoral presentation	0.439	61	0.630	50
VOA416	Different sizes / verbal and pictoral presentation	0.368	61	0.648	50

10 b). Justification

Teacher rating		low		high	
Variable	Task		N		N
VOB401	Different form / experimental presentation	0.298	61	0.685	50
VOB405	Different weight / experimental presentation	0.298	61	0.667	50
VOB406	Different sizes / experimental presentation	0.088	61	0.509	50
VOB411	Different form / verbal and pictoral presentation	0.491	61	0.667	50
VOB415	Different weight / verbal and pictoral presentation	0.298	61	0.611	50
VOB416	Different sizes / verbal and pictoral presentation	0.211	61	0.500.	50

10 c). Type of judgment

Teacher rating	low				high			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC401	0.684	0.211	0.105	61	0.870	0.037	0.093	50
VOC405	0.316	0.649	0.035	61	0.704	0.296	0.000	50
VOC406	0.316	0.368	0.316	61	0.685	0.074	0.241	50
VOC411	0.702	0.298	0.000	61	0.852	0.148	0.000	50
VOC415	0.456	0.544	0.000	61	0.630	0.370	0.000	50
VOC416	0.439	0.263	0.298	61	0.648	0.074	0.278	50

Table 11
Multiple compensation:
Solution probabilities at age 12
by gender
Urban sample

11 a). Adequacy of judgment

Gender		male		female	
Variable	Task		N		N
VOA401	Different form / experimental presentation	0.767	60	0.784	57
VOA405	Different weight / experimental presentation	0.583	60	0.373	57
VOA406	Different sizes / experimental presentation	0.517	60	0.471	57
VOA411	Different form / verbal and pictoral presentation	0.800	60	0.725	57
VOA415	Different weight / verbal and pictoral presentation	0.650	60	0.392	57
VOA416	Different sizes / verbal and pictoral presentation	0.483	60	0.529	57

11 b). Justification

Gender		male		female	
Variable	Task		N		N
VOB401	Different form / experimental presentation	0.533	60	0.431	57
VOB405	Different weight / experimental presentation	0.583	60	0.353	57
VOB406	Different sizes / experimental presentation	0.356	60	0.216	57
VOB411	Different form / verbal and pictoral presentation	0.650	60	0.490	57
VOB415	Different weight / verbal and pictoral presentation	0.567	60	0.314	57
VOB416	Different sizes / verbal and pictoral presentation	0.400	60	0.294	57

11c). Type of judgment

Gender	male				female			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC401	0.767	0.167	0.067	60	0.784	0.074	0.134	57
VOC405	0.583	0.400	0.017	60	0.412	0.569	0.020	57
VOC406	0.517	0.250	0.233	60	0.471	0.196	0.333	57
VOC411	0.800	0.200	0.000	60	0.745	0.255	0.000	57
VOC415	0.650	0.350	0.000	60	0.412	0.588	0.000	57
VOC416	0.550	0.183	0.267	60	0.529	0.157	0.315	57

Table 12
Multiple compensation:
Solution probabilities at age 12
by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

12 a). Adequacy of judgment

SES		low		high	
Variable	Task		N		N
VOA401	Different form / experimental presentation	0.672	58	0.887	53
VOA405	Different weight / experimental presentation	0.483	58	0.491	53
VOA406	Different sizes / experimental presentation	0.431	58	0.566	53
VOA411	Different form / verbal and pictoral presentation	0.724	58	0.811	53
VOA415	Different weight / verbal and pictoral presentation	0.552	58	0.509	53
VOA416	Different sizes / verbal and pictoral presentation	0.431	58	0.585	53

12 b). Justification

SES		low		high	
Variable	Task		N		N
VOB401	Different form / experimental presentation	0.672	58	0.887	53
VOB405	Different weight / experimental presentation	0.483	58	0.491	53
VOB406	Different sizes / experimental presentation	0.431	58	0.566	53
VOB411	Different form / verbal and pictoral presentation	0.724	58	0.811	53
VOB415	Different weight / verbal and pictoral presentation	0.552	58	0.509	53
VOB416	Different sizes / verbal and pictoral presentation	0.431	58	0.585	53

12 c). Type of judgment

SES	low				high			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC401	0.672	0.172	0.155	58	0.887	0.075	0.038	53
VOC405	0.500	0.483	0.017	58	0.509	0.472	0.019	53
VOC406	0.448	0.276	0.276	58	0.547	0.170	0.283	53
VOC411	0.741	0.259	0.000	58	0.811	0.189	0.000	53
VOC415	0.552	0.448	0.000	58	0.528	0.472	0.000	53
VOC416	0.483	0.310	0.207	58	0.604	0.019	0.377	53

Table 13
Multiple compensation:
Solution probabilities at age 12
by social class in six categories
Urban sample

13 a) Adequacy of judgment

SES		low/low		low/high	
Variable	Task		N		N
VOA401	Different form / experimental presentation	0.600	15	0.769	26
VOA405	Different weight / experimental presentation	0.533	15	0.423	26
VOA406	Different sizes / experimental presentation	0.267	15	0.617	26
VOA411	Different form / verbal and pictoral presentation	0.667	15	0.808	26
VOA415	Different weight / verbal and pictoral presentation	0.533	15	0.538	26
VOA416	Different sizes / verbal and pictoral presentation	0.333	15	0.500	26

13 a) Adequacy of judgment

SES	middle/low		middle/high		high/low		high/high	
Variable		N		N		N		N
VOA401	0.588	17	0.895	19	0.950	20	0.786	20
VOA405	0.529	17	0.421	19	0.600	20	0.429	20
VOA406	0.294	17	0.474	19	0.600	20	0.643	20
VOA411	0.647	17	0.789	19	0.800	20	0.857	20
VOA415	0.588	17	0.316	19	0.650	20	0.571	20
VOA416	0.412	17	0.579	19	0.450	20	0.786	20

13 b). Justification

SES		low/low		low/high	
Variable	Task		N		N
VOB401	Different form / experimental presentation	0.400	15	0.385	26
VOB405	Different weight / experimental presentation	0.467	15	0.423	26
VOB406	Different sizes / experimental presentation	0.133	15	0.308	26
VOB411	Different form / verbal and pictoral presentation	0.467	15	0.577	26
VOB415	Different weight / verbal and pictoral presentation	0.400	15	0.462	26
VOB416	Different sizes / verbal and pictoral presentation	0.333	15	0.346	26

13 b). Justification

SES	middle/low		middle/high		high/low		high/high	
Variable		N		N		N		N
VOB401	0.412	17	0.579	19	0.550	20	0.643	20
VOB405	0.529	17	0.421	19	0.600	20	0.477	20
VOB406	0.294	17	0.263	19	0.300	20	0.462	20
VOB411	0.471	17	0.526	19	0.700	20	0.714	20
VOB415	0.471	17	0.316	19	0.550	20	0.500	20
VOB416	0.353	17	0.316	19	0.300	20	0.500	20

13 c). Type of judgment

SES		low/low			
Variable	Task	equal	higher	lower	N
VOC401	Different form / experimental presentation	0.600	0.333	0.067	15
VOC405	Different weight / experimental presentation	0.600	0.400	0.000	15
VOC406	Different sizes / experimental presentation	0.267	0.400	0.333	15
VOC411	Different form / verbal and pictoral presentation	0.667	0.333	0.000	15
VOC415	Different weight / verbal and pictoral presentation	0.533	0.467	0.000	15
VOC416	Different sizes / verbal and pictoral presentation	0.333	0.400	0.267	15

13 c). Type of judgment

SES	low/high				middle/low			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC401	0.769	0.077	0.154	26	0.588	0.176	0.236	17
VOC405	0.423	0.538	0.000	26	0.529	0.471	0.000	17
VOC406	0.615	0.192	0.193	26	0.353	0.294	0.353	17
VOC411	0.808	0.192	0.000	26	0.706	0.294	0.000	17
VOC415	0.538	0.462	0.000	26	0.588	0.412	0.000	17
VOC416	0.615	0.269	0.186	26	0.412	0.294	0.294	17

13 c). Type of judgment

SES	middle/high				high/low			
Variable	equal	higher	lower	N.	equal	higher	lower	N.
VOC401	0.895	0.053	0.042	19	0.950	0.000	0.050	20
VOC405	0.421	0.579	0.000	19	0.600	0.350	0.050	20
VOC406	0.474	0.211	0.315	19	0.600	0.100	0.300	20
VOC411	0.789	0.211	0.000	19	0.800	0.200	0.000	20
VOC415	0.316	0.384	0.300	19	0.700	0.300	0.000	20
VOC416	0.579	0.421	0.000	19	0.500	0.500	0.000	20

13 c). Type of judgment

SES		high/high			
Variable	Task	equal	higher	lower	N.
VOC401	Different form / experimental presentation	0.786	0.214	0.000	20
VOC405	Different weight / experimental presentation	0.500	0.500	0.000	20
VOC406	Different sizes / experimental presentation	0.571	0.214	0.215	20
VOC411	Different form / verbal and pictoral presentation	0.857	0.143	0.000	20
VOC415	Different weight / verbal and pictoral presentation	0.571	0.429	0.000	20
VOC416	Different sizes / verbal and pictoral presentation	0.786	0.000	0.214	20

Rural sample

Table 14
Multiple compensation:
Solution probabilities at age 12
Rural sample

14 a). Adequacy of judgment

Variable	Task		N
VOA401	Different form of object/ experimental presentation	0.516	62
VOA405	Different weight of object/ experimental presentation	0.484	62
VOA406	Different sizes of containers/ experimental presentation	0.541	61
VOA411	Different form of object/ verbal and pictoral presentation	0.613	62
VOA415	Different weight of object/ verbal and pictoral presentation	0.613	62
VOA416	Different sizes of containers/ verbal and pictoral presentation	0.532	62

14 b). Justification

Variable	Task		N
VOB401	Different form of object/ experimental presentation	0.129	62
VOB405	Different weight of object/ experimental presentation	0.344	61
VOB406	Different sizes of containers/ experimental presentation	0.317	60
VOB411	Different form of object/ verbal and pictoral presentation	0.113	61
VOB415	Different weight of object/ verbal and pictoral presentation	0.210	62
VOB416	Different sizes of containers/ verbal and pictoral presentation	0.168	61

14 c). Type of judgment

Variable	Task	equal	higher	lower	N
VOC401	Different form / experimental presentation	0.508	0.213	0.279	61
VOC405	Different weight / experimental presentation	0.516	0.435	0.048	62
VOC406	Different sizes / experimental presentation	0.565	0.129	0.306	62
VOC411	Different form / verbal and pictoral presentation	0.629	0.355	0.000	62
VOC415	Different weight / verbal and pictoral presentation	0.500	0.468	0.016	62
VOC416	Different sizes / verbal and pictoral presentation	0.548	0.177	0.274	62

Table 15
Multiple compensation:
Solution probabilities at age 12
by gender
Rural sample

15 a). Adequacy of judgment

Gender		male		female	
Variable	Task		N		N
VOA401	Different form / experimental presentation	0.559	34	0.464	28
VOA405	Different weight / experimental presentation	0.588	34	0.357	28
VOA406	Different sizes / experimental presentation	0.441	34	0.667	27
VOA411	Different form / verbal and pictoral presentation	0.588	34	0.643	28
VOA415	Different weight / verbal and pictoral presentation	0.576	33	0.393	28
VOA416	Different sizes / verbal and pictoral presentation	0.471	34	0.607	28

15 b). Justification

Gender		male		female	
Variable	Task		N		N
VOB401	Different form / experimental presentation	0.147	34	0.107	28
VOB405	Different weight / experimental presentation	0.412	34	0.259	27
VOB406	Different sizes / experimental presentation	0.303	33	0.333	27
VOB411	Different form / verbal and pictoral presentation	0.118	34	0.107	28
VOB415	Different weight / verbal and pictoral presentation	0.265	34	0.143	28
VOB416	Different sizes / verbal and pictoral presentation	0.121	33	0.214	28

15 c). Type of judgment

Gender	male				female			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC401	0.576	0.182	0.242	33	0.429	0.250	0.321	28
VOC405	0.647	0.324	0.029	34	0.357	0.571	0.071	28
VOC406	0.471	0.147	0.382	34	0.679	0.107	0.214	28
VOC411	0.618	0.382	0.000	34	0.643	0.321	0.000	28
VOC415	0.588	0.412	0.000	34	0.393	0.536	0.036	28
VOC416	0.500	0.147	0.353	34	0.607	0.214	0.179	28

Table 16
Multiple compensation:
Solution probabilities at age 12
by region
Rural sample

16 a). Adequacy of judgment

Community		North	
Variable	**Task**		**N**
VOA401	Different form of object/ experimental presentation	0.632	19
VOA405	Different weight of object/ experimental presentation	0.474	19
VOA406	Different sizes of containers/ experimental presentation	0.333	18
VOA411	Different form of object/ verbal and pictoral presentation	0.579	19
VOA415	Different weight of object/ verbal and pictoral presentation	0.421	19
VOA416	Different sizes of containers/ verbal and pictoral presentation	0.421	19

16 a). Adequacy of judgment

Community		West		South	
Variable	**Task**		**N**		**N**
VOA401	Different form / experimental presentation	0.211	19	0.667	24
VOA405	Different weight / experimental presentation	0.421	19	0.542	24
VOA406	Different sizes / experimental presentation	0.579	19	0.667	24
VOA411	Different form / verbal and pictoral presentation	0.421	19	0.792	24
VOA415	Different weight / verbal and pictoral presentation	0.333	18	0.667	24
VOA416	Different sizes / verbal and pictoral presentation	0.526	19	0.625	24

16 b). Justification

Community		North	
Variable	**Task**		**N**
VOB401	Different form of object/ experimental presentation	0.105	18
VOB405	Different weight of object/ experimental presentation	0.263	19
VOB406	Different sizes of containers/ experimental presentation	0.222	18
VOB411	Different form of object/ verbal and pictoral presentation	0.158	19
VOB415	Different weight of object/ verbal and pictoral presentation	0.158	19
VOB416	Different sizes of containers/ verbal and pictoral presentation	0.278	18

Continuation

16 b). Justification

Community		West		South	
Variable	**Task**		**N**		**N**
VOB401	Different form / experimental presentation	0.053	19	0.208	24
VOB405	Different weight / experimental presentation	0.316	19	0.435	23
VOB406	Different sizes / experimental presentation	0.211	19	0.478	23
VOB411	Different form / verbal and pictoral presentation	0.000	19	0.167	24
VOB415	Different weight / verbal and pictoral presentation	0.105	19	0.333	24
VOB416	Different sizes / verbal and pictoral presentation	0.158	19	0.083	24

16 c). Type of judgment

Community		North			
Variable	**Task**	**equal**	**higher**	**lower**	**N**
VOC401	Different form / experimental presentation	0.579	0.211	0.211	19
VOC405	Different weight / experimental presentation	0.526	0.474	0.000	19
VOC406	Different sizes / experimental presentation	0.368	0.263	0.368	19
VOC411	Different form / verbal and pictoral presentation	0.579	0.368	0.421	19
VOC415	Different weight / verbal and pictoral presentation	0.421	0.579.	0.000	19
VOC416	Different sizes / verbal and pictoral presentation	0.421	0.421	0.158	19

16 c). Type of judgment

Community	West				South			
Variable	**equal**	**higher**	**lower**	**N**	**equal**	**higher**	**lower**	**N**
VOC401	0.222	0.444	0.333	18	0.667	0.042	0.292	24
VOC405	0.421	0.421	0.158	19	0.583	0.417	0.000	24
VOC406	0.579	0.053	0.368	19	0.708	0.083	0.208	24
VOC411	0.474	0.526	0.000	19	0.792	0.208	0.000	24
VOC415	0.368	0.579	0.053	19	0.667	0.333	0.000	24
VOC416	0.579	0.105	0.316	19	0.625	0.042	0.333	24

1.8. Assessment of the fifteen year old children

Urban sample

Table 17
Multiple compensation:
Solution probabilities at age 15
Urban sample

17 a). Adequacy of judgment

Variable	Task		N
VOA501	Different form of objects	0.776	107
VOA505	Different weight of objects	0.655	107
VOA506	Different sizes of objects	0.533	107
VOA507	Different sizes of containers and different weight	0.439	107

17 b). Justification

Variable	Task		N
VOB501	Different form of objects	0.280	107
VOB505	Different weight of objects	0.430	107
VOB506	Different sizes of objects	0.336	107
VOB507	Different sizes of containers and different weight	0.336	107

17 c). Type of judgment

Variable	Task	equal	higher	lower	N
VOC501	Different form of objects	0.794	0.131	0.075	107
VOC505	Different weight of objects	0.645	0.327	0.028	107
VOC506	Different sizes of objects	0.533	0.271	0.196	107
VOC507	Different sizes of containers and different weight	0.439	0.075	0.486	107

17 d). School experience

Variable	Task	yes	N
VOREM5	Recognition of experimental design	0.495	105
VOREC5	task recognition from school	0.577	104

17 d). School experience

Variable	Task	no idea	physics	arithmetic	N
VOSUJ5	school subject	0.442	0.548	0.01	104

17 d). School experience

Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.01	0.058	0.115	0.115	0.135	0.567	104

17 d). School experience

Variable	Task	same	different	no idea	N
VOSCH5	same/ different school	0.529	0.308	0.163	104

Table 18
Multiple compensation:
Solution probabilities at age 15
by teacher rating
Urban sample

18 a). Adequacy of judgment

Teacher rating		high		low	
Variable	Task		N		N
VOA501	Different form of objects	0.868	53	0.685	54
VOA505	Different weight of objects	0.717	53	0.574	54
VOA506	Different sizes of objects	0.736	53	0.333	54
VOA507	Different sizes of containers and different weight	0.585	53	0.296	54

18 b). Justification

Teacher rating		high		low	
Variable	Task		N		N
VOB501	Different form of objects	0.434	53	0.130	54
VOB505	Different weight of objects	0.585	53	0.278	54
VOB506	Different sizes of objects	0.566	53	0.111	54
VOB507	Different sizes of containers and different weight	0.566	53	0.111	54

18 c). Type of judgment

Teacher rating	high				low			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC501	0.887	0.075	0.038	53	0.704	0.185	0.111	54
VOC505	0.717	0.245	0.038	53	0.574	0.407	0.019	54
VOC506	0.736	0.189	0.075	53	0.333	0.352	0.314	54
VOC507	0.585	0.038	0.377	53	0.296	0.111	0.593	54

18 d). School experience

Teacher rating		high		low	
Variable	Task	yes	N	yes	N
VOREM501	Recognition of experimental design	0.547	53	0.442	52
VOREC 5	task recognition from school	0.615	52	0.538	52

18 d). School experience

Teacher rating		high				low			
Variable	Task	no idea	physics	arith.	N	no idea	physics	arith.	N
VOSUJ5	school subject	0.385	0.596	0.019	52	0.500	0.500	0.000	52

18 d). School experience

Teacher rating		high						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.00	0.058	0.115	0.135	0.173	0.519	52

18 d). School experience

Teacher rating		low						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.02	0.058	0.115	0.096	0.096	0.615	104

18 d). School experience

Teacher rating		high				low			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/ different school	0.385	0.115	0.500	52	0.231	0.212	0.558	52

Table 19
Multiple compensation:
Solution probabilities at age 15
by gender
Urban sample

19 a). Adequacy of judgment

Gender		male		female	
Variable	Task		N		N
VOA501	Different form of objects	0.772	57	0.780	50
VOA505	Different weight of objects	0.825	57	0.440	50
VOA506	Different sizes of objects	0.579	57	0.480	50
VOA507	Different sizes of containers and different weight	0.544	57	0.320	50

19 b). Justification

Gender		male		female	
Variable	Task		N		N
VOB501	Different form of objects	0.404	57	0.140	50
VOB505	Different weight of objects	0.544	57	0.300	50
VOB506	Different sizes of objects	0.439	57	0.220	50
VOB507	Different sizes of containers and different weight	0.439	57	0.220	50

19 c). Type of judgment

Gender	male				female			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC501	0.772	0.193	0.035	57	0.820	0.060	0.120	50
VOC505	0.825	0.175	0.000	57	0.440	0.500	0.060	50
VOC506	0.579	0.193	0.228	57	0.480	0.360	0.160	50
VOC507	0.544	0.088	0.368	57	0.320	0.060	0.620	50

19 d). School experience

Gender		male		female	
Variable	Task	yes	N	yes	N
VOREM501	Recognition of experimental design	0.482	56	0.510	49
VOREC 5	task recognition from school	0.589	56	0.563	48

19 d). School experience

Gender		male				female			
Variable	Task	no idea	physics	arith.	N	no idea	physics	arith.	N
VOSUJ5	school subject	0.446	0.554	0.000	56	0.438	0.542	0.021	48

19 d). School experience

Gender		male						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.02	0.054	0.089	0.179	0.107	0.554	56

19 d). School experience

Gender		female						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.00	0.063	0.146	0.042	0.167	0.583	48

19 d). School experience

Sex		male				female			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/ different school	0.357	0.161	0.482	56	0.250	0.167	0.583	48

Table 20
Multiple compensation:
Solution probabilities at age 15
by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

20 a). Adequacy of judgment

SES		low		high	
Variable	Task		N		N
VOA501	Different form of objects	0.786	56	0.765	51
VOA505	Different weight of objects	0.679	56	0.608	51
VOA506	Different sizes of objects	0.482	56	0.588	51
VOA507	Different sizes of containers and different weight	0.393	56	0.490	51

20 b). Justification

SES		low		high	
Variable	Task		N		N
VOB501	Different form of objects	0.286	56	0.275	51
VOB505	Different weight of objects	0.411	56	0.451	51
VOB506	Different sizes of objects	0.321	56	0.353	51
VOB507	Different sizes of containers and different weight	0.321	56	0.353	51

20 c). Type of judgment

SES	low				high			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC501	0.786	0.143	0.071	56	0.804	0.118	0.078	51
VOC505	0.679	0.321	0.000	56	0.608	0.333	0.059	51
VOC506	0.482	0.339	0.179	56	0.588	0.196	0.216	51
VOC507	0.393	0.089	0.518	56	0.490	0.059	0.451	51

20 d). School experience

SES		low		high	
Variable	Task	yes	N	yes	N
VOREM501	Recognition of experimental design	0.429	56	0.571	56
VOREC 5	task recognition from school	0.630	54	0.520	50

20 d). School experience

SES		low				high			
Variable	Task	no idea	physics	arith	N	no idea	physics	arith.	N
VOSUJ5	school subject	0.370	0.611	0.019	54	0.520	0.480	0.000	50

20 d). School experience

SES		low						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.02	0.074	0.093	0.167	0.148	0.500	54

20 d). School experience

SES		high						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.00	0.040	0.140	0.060	0.120	0.640	50

20 d). School experience

SES		low				high			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/ different school	0.389	0.148	0.463	54	0.220	0.180	0.600	50

Table 21
Multiple compensation:
Solution probabilities at age 15
by social class in six categories
Urban sample

21 a) Adequacy of judgment

SES		low/low		low/high	
Variable	Task		N		N
VOA501	Different form of objects	0.500	14	0.840	25
VOA505	Different weight of objects	0.643	14	0.680	25
VOA506	Different sizes of objects	0.357	14	0.560	25
VOA507	Different sizes of containers and different weight	0.214	14	0.440	25

Continuation

21 a). Adequacy of judgment

SES	middle/low		middle/high		high/low		high/high	
Variable		N		N		N		N
VOA501	0.941	17	0.889	18	0.700	20	0.692	13
VOA505	0.706	17	0.611	18	0.600	20	0.615	13
VOA506	0.471	^17	0.556	18	0.650	20	0.538	13
VOA507	0.471	17	0.444	18	0.550	20	0.462	13

21 b). Justification

SES		low/low		low/high	
Variable	Task		N		N
VOB501	Different form of objects	0.214	14	0.360	25
VOB505	Different weight of objects	0.357	14	0.440	17
VOB506	Different sizes of objects	0.214	14	0.360	25
VOB507	Different sizes of containers and different weight	0.143	14	0.400	25

21 b). Justification

SES	middle/low		middle/high		high/low		high/high	
Variable		N		N		N		N
VOB501	0.235	17	0.167	18	0.350	20	0.308	13
VOB505	0.412	17	0.444	18	0.450	20	0.462	13
VOB506	0.353	17	0.222	18	0.450	20	0.385	13
VOB507	0.353	17	0.222	18	0.450	20	0.385	13

21 c). Type of judgment

SES		low/low			
Variable	Task	equal	higher	lower	N
VOC501	Different form of objects	0.500	0.357	0.143	14
VOC505	Different weight of objects	0.643	0.357	0.000	14
VOC506	Different sizes of objects	0.357	0.429	0.214	14
VOC507	Different sizes of containers and different weight	0.214	0.071	0.714	14

Continuation

21 c). Type of judgment

SES	low/high				middle/low			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC501	0.840	0.080	0.080	25	0.941	0.059	0.000	17
VOC505	0.680	0.320	0.000	25	0.706	0.294	0.000	17
VOC506	0.560	0.200	0.240	25	0.471	0.471	0.059	17
VOC507	0.440	0.120	0.440	25	0.471	0.059	0.0471	17

21 c). Type of judgment

SES	middle/high				high/low			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC501	0.889	0.056	0.056	18	0.750	0.100	0.150	20
VOC505	0.611	0.278	0.111	18	0.600	0.400	0.000	20
VOC506	0.556	0.278	0.167	18	0.650	0.150	0.200	20
VOC507	0.444	0.111	0.444	18	0.550	0.000	0.450	20

21 c). Type of judgment

SES		high/high			
Variable	Task	equal	higher	lower	N
VOB501	Different form of objects	0.769	0.231	0.000	13
VOB505	Different weight of objects	0.615	0.308	0.077	13
VOB506	Different sizes of objects	0.538	0.154	0.308	13
VOB507	Different sizes of containers and different weight	0.462	0.077	0.462	13

21 d). School experience

SES		low/low		low/high		middle/l	
Variable	Task	yes	N	yes	N	yes	N.
VOREM501	Recognition of experiment	0.286	14	0.560	25	0.353	17
VOREC 5	task recognition from school	0.538	14	0.625	25	0.706	17

SES		middle/high		high/low		high/h	
Variable	Task	yes	N	yes	N	yes	N.
VOREM501	Recognition of experiment	0.529	17	0.474	19	0.769	13
VOREC 5	task recognition from school	0.556	17	0.400	20	0.667	13

21 d). School experience

SES		low/low				low/high			
Variable	Task	no idea	physics	arithmetic	N	no idea	physics	arithmetic	N
VOSUJ5	school subject	0.462	0.538	0.000	13	0.375	0.583	0.042	24

21 d). School experience

SES		middle/low				middle/high			
Variable	Task	no idea	physics	arithmetic	N	no idea	physics	arithmetic	N
VOSUJ5	school subject	0.375	0.583	0.000	17	0.444	0.556	0.000	18

SES		high/low				high/high			
Variable	Task	no idea	physics	arithmetic	N	no idea	physics	arithmetic	N
VOSUJ5	school subject	0.700	0.300	0.000	20	0.333	0.667	0.000	12

21 d). School experience

SES		low/low						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.00	0.154	0.077	0.077	0.231	0.462	13

SES		low/high						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.04	0.042	0.083	0.167	0.125	0.542	24

SES		middle/low						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.00	0.059	0.118	0.235	0.118	0.471	17

SES		middle/high						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.00	0.056	0.167	0.056	0.167	0.556	18

SES		high/low						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.00	0.000	0.150	0.100	0.050	0.700	20

SES		high/high						
Variable	Task	4 th	5 th	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.00	0.083	0.083	0.000	0.167	0.667	12

21 d). School experience

SES		low/low				low/high			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/different school	0.308	0.154	0.538	13	0.458	0.125	0.417	24
SES		**middle/low**				**middle/high**			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/different school	0.353	0.176	0.471	17	0.333	0.167	0.500	18
SES		**high/low**				**high/high**			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/different school	0.050	0.200	0.750	20	0.333	0.167	12	12

Rural sample

Table 22
Multiple compensation:
Solution probabilities at age 15
Rural sample

22 a).Adequacy of judgment

Variable	Task		N
VOA501	Different form of objects	0.902	61
VOA505	Different weight of objects	0.738	61
VOA506	Different sizes of objects	0.607	61
VOA507	Different sizes of containers and different weight	0.557	61

22 b). Justification

Variable	Task		N
VOB501	Different form of objects	0.426	61
VOB505	Different weight of objects	0.508	61
VOB506	Different sizes of objects	0.410	61
VOB507	Different sizes of containers and different weight	0.426	61

22 c) Type of judgment

Variable	Task	equal	higher	lower	N
VOC501	Different form of objects	0.904	0.049	0.049	61
VOC505	Different weight of objects	0.721	0.230	0.049	61
VOC506	Different sizes of objects	0.639	0.197	0.164	61
VOC507	Different sizes of containers and different weight	0.590	0.082	0.328	61

22 d). School experience

Variable	Task	yes	N
VOREM501	Recognition of experimental design	0.377	61
VOREC 5	task recognition from school	0.300	61

22 d). School experience

Variable	Task	no idea	physics	biology	N
VOSUJ5	school subject	0.750	0.233	0.017	61

22 d). School experience

Variable	Task	6 th	7 th	8 th	9 th	no idea	N
VOWHN5	recognize grade	0.017	0.033	0.117	0.017	0.817	61

22 d). School experience

Variable	Task	same	different	no idea	N
VOSCH5	same/ different school	0.150	0.067	0.783	60

Table 23
Multiple compensation:
Solution probabilities at age 15
by gender
Rural sample

23 a). Adequacy of judgment

Gender		male		female	
Variable	Task		N		N
VOA501	Different form of objects	0.939	33	0.857	28
VOA505	Different weight of objects	0.879	33	0.571	28
VOA506	Different sizes of objects	0.667	33	0.536	28
VOA507	Different sizes of containers and different weight	0.576	33	0.250	28

23 b). Justification

Gender		male		female	
Variable	Task		N		N
VOB501	Different form of objects	0.576	33	0.250	28
VOB505	Different weight of objects	0.636	33	0.357	28
VOB506	Different sizes of objects	0.541	33	0.250	28
VOB507	Different sizes of containers and different weight	0.576	33	0.250	28

23 c). Type of judgment

Gender	male				female			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC501	0.939	0.030	0.030	33	0.857	0.071	0.071	28
VOC505	0.879	0.091	0.030	33	0.536	0.393	0.071	28
VOC506	0.667	0.182	0.152	33	0.607	0.214	0.179	28
VOC507	0.727	0.030	0.242	33	0.429	0.143	0.429	28

23 d). School experience

Gender		male		female	
Variable	Task	yes	N	yes	N.
VOREM501	Recognition of experimental design	0.333	33	0.429	28
VOREC 5	task recognition from school	0.273	33	0.333	28

23 d). School experience

Gender		male				female			
Variable	Task	no idea	physics	biology	N	no idea	physics	arith.	N
VOSUJ5	school subject	0.818	0.182	0.000	27	0.667	0.296	0.037	33

23 d). School experience

Gender		male					
Variable	Task	6 th	7 th	8 th	9 th	no idea	N
VOWHN5	recognize grade	0.030	0.030	0.061	0.030	0.848	33

Gender		female				
Variable	Task	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.000	0.037	0.185	0.778	28

23 d). School experience

Gender		male				female			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/ different school	0.152	0.061	0.788	33	0.148	0.074	0.778	27

Table 24
Multiple compensation:
Solution probabilities at age 15
by region
Rural sample

24 a). Adequacy of judgment

Community		North		West		South	
Variable	Task		N		N		N
VOA501	Different form of objects	0.895	19	0.833	18	0.958	24
VOA505	Different weight of objects	0.842	19	0.611	18	0.750	24
VOA506	Different sizes of objects	0.632	19	0.500	18	0.667	24
VOA507	Different sizes and weight	0.684	19	0.444	18	0.542	24

24 b). Justification

Community		North		West		South	
Variable	Task		N		N		N
VOB501	Different form of objects	0.368	19	0.278	18	0.583	24
VOB505	Different weight of objects	0.474	19	0.333	18	0.667	24
VOB506	Different sizes of objects	0.421	19	0.278	18	0.500	24
VOB507	Different sizes and weight	0.421	19	0.333	18	0.500	24

24 c). Type of judgment

Community		North			
Variable	Task	equal	higher	lower	N
VOC501	Different form of objects	0.895	0.105	0.000	19
VOC505	Different weight of objects	0.789	0.211	0.000	19
VOC506	Different sizes of objects	0.211	0.278	0.042	19
VOC507	Different sizes of containers and different weight	0.789	0.000	0.211	19

24 c). Type of judgment

Community	West				South			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC501	0.833	0.056	0.111	18	0.958	0.000	0.042	24
VOC505	0.611	0.278	0.111	18	0.750	0.208	0.042	24
VOC506	0.556	0.167	0.278	18	0.667	0.292	0.042	24
VOC507	0.444	0.167	0.389	18	0.542	0.083	0.375	24

24 d). School experience

Community		North		West		South	
Variable	Task	yes	N	yes	N	yes	N.
VOREM501	Recognition of experiment	0.632	19	0.220	18	0.292	24
VOREC 5	task recognition from school	0.389	19	0.389	18	0.167	24

24 d). School experience

Community		North				West			
Variable	Task	no idea	physics	biology	N	no idea	physics	biology	N
VOSUJ5	school subject	0.667	0.333	0.000	18	0.667	0.278	0.056	18

Community		South			
Variable	Task	no idea	physics	biology	N
VOSUJ5	school subject	0.875	0.125	0.000	24

24 d). School experience

Community					North	
Variable	Task	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.000	0.000	0.167	0.833	18

Community					West		
Variable	Task	6 th	7 th	8 th	9 th	no idea	N
VOWHN5	recognize grade	0.000	0.056	0.222	0.056	0.667	18

24 d). School experience

Community					South	
Variable	Task	6 th	7 th	8 th	no idea	N
VOWHN5	recognize grade	0.042	0.042	0.000	0.917	24

24 d). School experience

Community		North				West			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/ different school	0.000	0.222	0.778	18	0.389	0.000	0.611	19

Community					South	
Variable	Task	same	diff	no idea	N	
VOSCH5	same/ different school	0.083	0.000	0.917	24	

1.9. Assessment of the seventeen year old children

Urban sample

Table 25
Multiple compensation:
Solution probabilities at age 17
Urban sample

25 a).Adequacy of judgment

Variable	Task		N
VOA601	Different form of objects	0.915	59
VOA605	Different weight of objects	0.729	59
VOA606	Different sizes of objects	0.678	59
VOA607	Different sizes of containers and different weight	0.678	59

25 b). Justification

Variable	Task		N
VOB601	Different form of objects	0.525	59
VOB605	Different weight of objects	0.542	59
VOB606	Different sizes of objects	0.475	59
VOB607	Different sizes of containers and different weight	0.542	59

25 c) Type of judgment

Variable	Task	equal	higher	lower	N
VOC601	Different form of objects	0.932	0.051	0.017	59
VOC605	Different weight of objects	0.729	0.237	0.034	59
VOC606	Different sizes of objects	0.712	0.153	0.136	59
VOC607	Different sizes of containers and different weight	0.661	0.068	0.271	59

25 d). School experience

Variable	Task	yes	N
VOREM601	Recognition of experimental design	0.661	56
VOREC 6	task recognition from school	0.542	59

25 d). School experience

Variable	Task	no idea	physics	biology	N
VOSUJ6	school subject	0.492	0.492	0.017	59

25 d). School experience

Variable	Task	5th	6th	7 th	8th	9 th	10th	11th	no idea	N
VOWHN6	recognize grade	0.034	0.034	0.186	0.119	0.034	0.017	0.017	0.559	59

25 d). School experience

Variable	Task	same	different	no idea	N
VOSCH6	same/ different school	0.017	0.441	0.542	59

Table 26
Multiple compensation:
Solution probabilities at age 17
by teacher rating
Urban sample

26 a). Adequacy of judgment

Teacher rating		high		low	
Variable	Task		N		N
VOA601	Different form of objects	0.923	39	0.900	20
VOA605	Different weight of objects	0.846	39	0.500	20
VOA606	Different sizes of objects	0.846	39	0.350	20
VOA607	Different sizes of containers and different weight	0.795	39	0.450	20

26 b). Justification

Teacher rating		high		low	
Variable	Task		N		N
VOB601	Different form of objects	0.667	39	0.250	20
VOB605	Different weight of objects	0.744	39	0.150	20
VOB606	Different sizes of objects	0.641	39	0.150	20
VOB607	Different sizes of containers and different weight	0.692	39	0.250	20

26 c). Type of judgment

Teacher rating	high				low			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC601	0.949	0.026	0.026	39	0.900	0.100	0.000	20
VOC605	0.846	0.154	0.000	39	0.500	0.400	0.100	20
VOC606	0.846	0.103	0.051	39	0.450	0.250	0.300	20
VOC607	0.821	0.026	0.154	39	0.350	0.150	0.500	20

26 d).School experience

Teacher rating		high		low	
Variable	Task	yes	N	yes	N.
VOREM601	Recognition of experimental design	0.658	38	0.667	18
VOREC 6	task recognition from school	0.615	39	0.400	20

Teacher rating		high				low			
Variable	Task	no idea	physics	biology	N	no idea	physics	biology	N
VOSUJ6	school subject	0.410	0.564	0.026	39	0.650	0.350	0.000	20

Teacher rating		high								
Variable	Task	5 th	6 th	7 th	8 th	9 th	10 th	11 th	no i.	N
VOWHN6	recognize grade	0.051	0.051	0.256	0.103	0.051	0.026	0.026	0.436	39

Teacher rating		low					
Variable	Task	5 th	6 th	7 th	8 th	no idea	N
VOWHN6	recognize grade	0.000	0.000	0.050	0.150	0.800	20

Teacher rating		high				low			
Variable	Task	same	diff.	no i.dea	N	same	diff	no i.dea	N
VOSCH6	same/ different school	0.026	0.513	0.462	39	0.000	0.300	0.700	20

Table 27
Multiple compensation:
Solution probabilities at age 17
by gender
Urban sample

27 a). Adequacy of judgment

Gender		male		female	
Variable	**Task**		**N**		**N**
VOA601	Different form of objects	0.880	25	0.941	34
VOA605	Different weight of objects	0.920	25	0.588	34
VOA606	Different sizes of objects	0.920	25	0.500	34
VOA607	Different sizes of containers and different weight	0.880	25	0.529	34

27 b). Justification

Gender		male		female	
Variable	**Task**		**N**		**N**
VOB601	Different form of objects	0.760	25	0.353	34
VOB605	Different weight of objects	0.760	25	0.382	34
VOB606	Different sizes of objects	0.760	25	0.265	34
VOB607	Different sizes of containers and different weight	0.880	25	0.294	34

27 c). Type of judgment

Gender	male				female			
Variable	**equal**	**higher**	**lower**	**N**	**equal**	**higher**	**lower**	**N**
VOC601	0.880	0.080	0.040	25	0.971	0.029	0.000	34
VOC605	0.920	0.080	0.000	25	0.588	0.353	0.059	34
VOC606	0.920	0.040	0.040	25	0.559	0.235	0.206	34
VOC607	0.920	0.000	0.080	25	0.471	0.118	0.412	34

27 d). School experience

Gender		male		female	
Variable	**Task**	**yes**	**N**	**yes**	**N.**
VOREM601	Recognition of experimental design	0.680	25	0.645	31
VOREC6	task recognition from school	0.480	25	0.588	34

27 d). School experience

Gender		male				female			
Variable	Task	no idea	physics	arith.	N	no idea	ph.	arith.	N
VOSUJ6	school subject	0.560	0.440	0.000	25	0.441	0.529	0.029	34

27 d). School experience

Gender		male								
Variable	Task	5 th	6 th	7 th	8 th	9 th	10 th	11 th	no i.	N
VOWHN6	recognize grade	0.080	0.040	0.080	0.160	0.040	0.000	0.040	0.560	25

Gender		female								
Variable	Task	5 th	6 th	7 th	8 th	9 th	10 th	11 th	no i.	N
VOWHN6	recognize grade	0.000	0.029	0.265	0.088	0.029	0.029	0.000	0.559	34

27 d). School experience

Gender		male				female			
Variable	Task	same	diff.	no idea	N	same	diff	no idea	N
VOSCH5	same/ different school	0.040	0.400	0.560	25	0.000	0.471	0.529	34

Table 28
Multiple compensation:
Solution probabilities at age 17
by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

28 a). Adequacy of judgment

SES		low		high	
Variable	Task		N		N
VOA601	Different form of objects	0.920	25	0.912	34
VOA605	Different weight of objects	0.680	25	0.765	34
VOA606	Different sizes of objects	0.720	25	0.647	34
VOA607	Different sizes of containers and different weight	0.640	25	0.706	34

28 b). Justification

SES		low		high	
Variable	Task		N		N
VOB601	Different form of objects	0.560	25	0.500	34
VOB605	Different weight of objects	0.480	25	0.588	34
VOB606	Different sizes of objects	0.440	25	0.500	34
VOB607	Different sizes of containers and different weight	0.560	25	0.529	34

28 c). Type of judgment

SES	low				high			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC601	0.920	0.080	0.000	25	0.941	0.029	0.029	34
VOC605	0.680	0.280	0.040	25	0.765	0.206	0.029	34
VOC606	0.760	0.120	0.120	25	0.676	0.176	0.147	34
VOC607	0.600	0.080	0.320	25	0.706	0.059	0.235	34

28 d). School experience

SES		low		high	
Variable	Task	yes	N	yes	N.
VOREM601	Recognition of experimental design	0.667	24	0.656	32
VOREC6	task recognition from school	0.640	25	0.471	34

28 d). School experience

SES		low				high			
Variable	Task	no idea	physics	biology	N	no idea	physics	biology	N
VOSUJ6	school subject	0.360	0.640	0.000	25	0.588	0.382	0.029	34

28 d). School experience

SES		low								
Variable	Task	5 th	6 th	7 th	8 th	9 th	10 th	11th	no i.	N
VOWHN6	recognize grade	0.000	0.040	0.160	0.240	0.080	0.000	0.040	0.440	25

28 d). School experience

SES		high								
Variable	**Task**	**5 th**	**6 th**	**7 th**	**8 th**	**9 th**	**10 th**	**11 th**	**no i.**	**N**
VOWHN6	recognize grade	0.059	0.029	0.206	0.029	0.000	0.029	0.000	0.647	34

28 d). School experience

SES		low				high			
Variable	**Task**	**same**	**diff.**	**no idea**	**N**	**same**	**diff**	**no idea**	**N**
VOSCH5	same/ different school	0.040	0.520	0.440	25	0.000	0.382	0.618	34

Table 29
Multiple compensation:
Solution probabilities at age 17
by SES in six categories
Urban sample

29 a) Adequacy of judgment

SES		low/low		low/high	
Variable	**Task**		**N**		**N**
VOA601	Different form of objects	1.000	7	1.000	9
VOA605	Different weight of objects	0.571	7	0.667	9
VOA606	Different sizes of objects	0.714	7	0.778	9
VOA607	Different sizes of containers and different weight	0.286	7	0.667	9

Continuation

29 a). Adequacy of Judgment

SES	middle/low		middle/high		high/low		high/high	
Variable		**N**		**N**		**N**		**N**
VOA601	0.778	9	0.929	14	1.000	12	0.750	8
VOA605	0.778	9	0.714	14	0.833	12	0.750	8
VOA606	0.667	9	0.500	14	0.750	12	0.750	8
VOA607	0.889	9	0.714	14	0.750	12	0.625	8

29 b). Justification

SES		low/low		low/high	
Variable	Task		N		N
VOB601	Different form of objects	0.429	7	0.778	9
VOB605	Different weight of objects	0.429	7	0.667	9
VOB606	Different sizes of objects	0.286	7	0.667	9
VOB607	Different sizes of containers and different weight	0.286	7	0.667	9

29 b). Justification

SES	middle/low		middle/high		high/low		high/high	
Variable		N		N		N		N
VOB601	0.444	9	0.500	14	0.500	12	0.500	8
VOB605	0.333	9	0.571	14	0.583	12	0.625	8
VOB606	0.333	9	0.357	14	0.583	12	0.625	8
VOB607	0.667	9	0.429	14	0.583	12	0.625	8

29 c). Type of judgment

SES		low/low			
Variable	Task	equal	higher	lower	N
VOC601	Different form of objects	1.000	0.000	0.000	7
VOC605	Different weight of objects	0.571	0.429	0.000	7
VOC606	Different sizes of objects	0.714	0.143	0.143	7
VOC607	Different sizes of containers and different weight	0.286	0.000	0.714	7

SES	low/high				middle/low			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC601	1.000	0.000	0.000	9	0.778	0.222	0.000	9
VOC605	0.667	0.222	0.111	9	0.778	0.222	0.000	9
VOC606	0.889	0.111	0.000	9	0.667	0.111	0.222	9
VOC607	0.667	0.222	0.111	9	0.778	0.000	0.222	9

29 c). Type of judgment

SES	middle/high				high/low			
Variable	equal	higher	lower	N	equal	higher	lower	N
VOC601	0.929	0.000	0.071^	14	1.000	0.000	0.000	12
VOC605	0.714	0.214	0.071	14	0.833	0.167	0.000	12
VOC606	0.500	0.286	0.214	14	0.833	0.083	0.083	12
VOC607	0.714	0.071	0.214	14	0.750	0.083	0.167	12

SES		high/high			
Variable	Task	equal	higher	lower	N
VOC601	Different form of objects	0.875	0.125	0.000	8
VOC605	Different weight of objects	0.750	0.250	0.000	8
VOC606	Different sizes of objects	0.750	0.125	0.125	8
VOC607	Different sizes of containers and different weight	0.625	0.000	0.375	8

29 d). School experience

SES		low/low		low/high		middle/low	
Variable	Task	yes	N	yes	N	yes	N.
VOREM601	Recognition of experiment	0.500	6	0.778	9	0.667	9
VOREC6	task recognition from school	0.714	7	0.889	9	0.333	9

SES		middle/high		high/low		high/high	
Variable	Task	yes	N	yes	N	yes	N.
VOREM601	Recognition of experiment	0.538	13	0.750	12	0.714	7
VOREC 6	task recognition from school	0.357	14	0.500	12	0.625	8

29 d). School experience

SES		low/low				low/high			
Variable	Task	n.i.	ph.	biol	N	n.i.	ph.	biol.	N
VOSUJ6	school subject	0.286	0.714	0.000	7	0.111	0.889	0.000	9
SES		middle/low				middle/high			
Variable	Task	n.i.	ph.	biol	N	n.i.	ph.	biol.	N
VOSUJ6	school subject	0.667	0.333	0.000	9	0.643	0.357	0.000	14

29 d). School experience

SES		high/low				high/high			
Variable	Task	no idea	physics	biology	N	no idea	physics	biology	N
VOSUJ6	school subject	0.583	0.333	0.083	12	0.500	0.500	0.000	8

29 d). School experience

SES		low/low							
Variable	Task	5 th	6 th	7 th	8 th	9th	10th	no idea	N
VOWHN6	recognize grade	0.000	0.000	0.286	0.429	0.000	0.000	0.286	7

29 d). School experience

SES		low/high							
Variable	Task	5 th	6 th	7 th	8 th	9th	11th	no idea	N
VOWHN6	recognize grade	0.000	0.000	0.111	0.222	0.222	0.111	0.333	9

29 d). School experience

SES		middle/low							
Variable	Task	5 th	6 th	7 th	8 th	9th	10th	no idea	N
VOWHN6	recognize grade	0.00	0.111	0.111	0.111	0.000	0.000	0.667	9

29 d). School experience

SES		middle/high							
Variable	Task	5 th	6 th	7 th	8 th	9th	10th	no idea	N
VOWHN6	recognize grade	0.00	0.071	0.143	0.000	0.000	0.000	0.786	14

29 d). School experience

SES		high/low							
Variable	Task	5 th	6 th	7 th	8 th	9th	10th	no idea	N
VOWHN6	recognize grade	0.00	0.000	0.167	0.083	0.000	0.083	0.667	12

29 d). School experience

SES		high/high							
Variable	**Task**	**5 th**	**6 th**	**7 th**	**8 th**	**9th**	**10th**	**no idea**	**N**
VOWHN6	recognize grade	0.25	0.000	0.375	0.000	0.000	0.000	0.375	8

SES		low/low				low/high			
Variable	**Task**	**same**	**diff.**	**n.i.**	**N**	**same**	**diff**	**n.i.**	**N**
VOSCH6	same/ different school	0.000	0.714	0.286	7	0.111	0.556	0.333	9

29 d). School experience

SES		middle/low				middle/high			
Variable	**Task**	**same**	**diff.**	**n.i.**	**N**	**same**	**diff**	**n.i.**	**N**
VOSCH6	same/ different school	0.000	0.333	0.667	9	0.000	0.286	0.714	14

29 d). School experience

SES		high/low				high/high			
Variable	**Task**	**same**	**diff.**	**n.i.**	**N**	**same**	**diff**	**n.i.**	**N**
VOSCH6	same/ different school	0.000	0.333	0.667	12	0.000	0.625	0.375	8

2. The pendulum task

2.1. Description of the concept

The pendulum task is a physical experiment designed by Inhelder and Piaget (1958) to measure concrete and formal operations. (For a detailed description of the experiment see Kuhn & Angelev, 1975; Inhelder & Piaget, 1958; and Somerville 1974). The experiment is based on the law of nature which states that the frequency of the pendulum's swing depends solely on the length of the pendulum, other factors having no influence on the result. Based on this law, Inhelder & Piaget (1958) tested the operational ability of children and adolescents to isolate and control the operative (or effective) factors that determine a result derived from multiple causes. In the pendulum task, the subject is confronted with a pendulum device where the frequency of the pendulum's strokes can be influenced in a variety of ways: through changes in a) the length of the pendulum's cord, b) the weight of the pendulum and c) the impetus of the pendulum (for example, the height from which the pendulum is released).

Two approaches were used in the pendulum experiment.

In the first place, it can be observed how the subject constructs and tests the problem experimentally. Secondly, one can record the conclusions the subject draws from the experiment. The first aspect involves the subject's reasoning process, the second aspect the content of the reasoning. Inhelder & Piaget (1958) assume that correct reasoning involves the application of two of the 19 binary operations, namely equivalence and affirmation. The exclusion of the two ineffective factors (weight and impetus) proceeds from the operation of affirmation p(q): the weight (p) elicits no change in the pendulum's frequency (q). The relation between the length and the frequency of the pendulum is produced through the binary operation of (reciprocal) equivalence ($p = q$): a change in the length goes along with an inverse change in frequency. In other words, the longer the pendulum, the slower its swings.

2.2. Description of the measures: Equipment and materials

The subject is placed in front of a pendulum device in which the length of the pendulum's cord, the pendulum's weight, and the pendulum's impetus (the height from which the pendulum is released) can be varied (for a precise description of the construction see Somerville 1974). Next to the pendulum device three pendulum cords of different length and five different pendulum weights (10, 20, 50, 100, 200 gram) are placed. Before the session begins, the pendulum including the cord is removed from the pendulum device and likewise placed next to the device.

2.3. Investigation procedures and instructions

The pendulum task is carried out and explained to the subject as follows:

The investigator (I) explores the subject's (S) familiarity with the concept of the pendulum through the following questions:

- "Do you know what a pendulum is?"
- "Did you ever see anything like a pendulum?- Where?"
- "Do you know that there are clocks which have a pendulum?"
- "Look here, I have some things which we can use to make a pendulum. There are three strings, one of which I'll now put on this metal rod."

I takes the medium-length cord and attaches it at the end of the pendulum device.

- "Now I put this weight at the end of the string."

I takes the medium weight and hangs it on the end of the cord.

- "Now you see, we have something that we call a pendulum. If we push the weight, the pendulum will swing back and forth."

The I demonstrates this.

- You see, the pendulum swings at a certain speed. You can judge this speed, if you notice how often the weight crosses this rod."

The I points to the vertical rod. Then the actual experiment begins.

- "Now you should find out what makes the pendulum swing more slowly or more quickly. To answer this question, you can try out whatever you like. You can use all the things on the table. You can change the weight on the end of the cord, you can change the length of the cord on which the pendulum hangs. And you can change the height from which you let the pendulum fall."
- "Do you understand the problem and my question? The question is, what makes the pendulum swing quickly or slowly. I mean, what influences the speed at which the pendulum swings, or what causes the speed? You can play around with the pendulum and do anything you want to. If you play with the pendulum and change things around, you will be able to find out what makes the pendulum swing quickly or slowly, back and forth."

The investigator tries to make it as clear as possible that the task is not supposed to be a school-like test situation. The subject should not feel any pressure to find the answer as quickly as possible. Instead, the subject should have the impression that there is plenty of time to explore and analyze the experimental problem. The subject is also asked to talk out loud while he or she works with the pendulum (think-aloud procedure.).

When the I feels that the child has understood the task at hand, the S can begin to manipulate the pendulum.

In case the S does not offer any reasons for what he or she is doing, the I should ask the following questions:

- "What are you doing now?":
- "Why are you doing that?":

In case S makes no comment on the results of the manipulations (frequency of the pendulum), the I should ask the following questions:

- "What did you just find out? What can you actually see there?"
- "What just happened there?"

If the I feels that the S is tracing back the effect to one or more particular variables or to the interaction of these variables, I should again inquire which of the factors the S really means.

- "Why does it go faster and slower? What is the reason for that?" If the S does not investigate one or more factors, the S can be encouraged in the following ways:
- "Is that everything that could have an influence on the speed?"
- "Isn't there something else that is important?"

In case the subject has shown no progress or made no apparent attempt to explore the problem within fifteen minutes, it should be made clear to that he or she is doing fine and there are still other tasks to master. If after fifteen minutes the I feels that the S is well on the way to solving the task, then another five minutes should be granted so that the S can end the exploration. After that the task should be interrupted for good.

After finishing the experimental manipulation, the S is asked for the conclusions:

- "Show me what makes the pendulum go faster or what slows it down!"
- "What exactly did you find out about the weight (the impetus, the length, or combinations of the three)?"
- "How would you make the pendulum go faster or slower?"
- "Show me then what makes the pendulum go faster or slower?"

In case the subject has difficulties to understand the task, the child is asked to imagine that he were to ask his friend would come who knew nothing about this pendulum task what regulates the frequency of the pendulum. If the child does not talk about all variables, the I asks about them.

At measurement occasion 3 only the urban sample was investigated, but at measurement occasion 4 and 5 both the urban and the rural samples were assessed. The fifteen year-old children were asked before the experimental manipulation if they remembered the task equipment, the name of the instrument and the concept, if they knew the operative variable and if they remembered having dealt with the pendulum at school. In case they gave an affirmative answer, the children had to specify the school subject, the school's name, and the grade and whether this happened at the school they attended at present. Further, the children were asked about their expectations concerning the operative variable at the beginning of the experiment.

2.4. Scoring instructions and coding rules

2.4.1. Scoring and coding at age nine (Third measurement occasion)

Scoring was done according to the coding system developed by Somerville. Children's cognitive abilities were assessed using 12 scales, six of them measuring the method of experimentation and the other scales indicating the correctness of the conclusions.

Method of experimentation:

(1) Some attempt to hold variables constant

+: Awareness throughout of the need to control other variables
when examining the effects of one particular variable

0: This awareness only rarely

-: No attention to other variables when considering the effects of one (or more) variables

(2) Changes only one variable to examine an effect

+: All variables except one kept constant in consecutive tests throughout

0: This procedure used sometimes but not seen as essential

-: Two or more variables changed at a time

(3) Changes variables correctly to test as intended

+: Variables changed consistently with stated intentions

0: Some confusion about which variable to change

- Behavior such as changing the weight to examine the effect of the length of the string

(4) Makes inferences about appropriate variables

+: Conclusions (not necessarily correct) expressed pertaining to the variable manipulated

0: Conclusions not always appropriate to the experimental manipulations

-: Conclusions seldom appropriate to the experimental manipulations

(5) Makes some untested inferences

+: Able to generalize conclusions to other values of variables without testing

0: Able to predict results for other values of variables, but tests to make sure

-: Unwilling to make predictions about any values of variables not seen

(6) Overall efficiency of procedures

+: Extremely efficient- near maximum inference from minimum number of tests

0: moderately efficient- relies to some extent on inference

- inefficient- little or no tendency to eliminate unnecessary tests

Aspects of performance relating to the content of conclusions reached:

Ratings of +, 0, - were made on the following two aspects of conclusions reached:

(1) Ordering of effects of each variable

(2) Correct effect of each variable

These two ratings were made for each of the three variables:

St: Length of the string

Wt: The magnitude of the weight

Ht: The amplitude of oscillation, indicated by the height of the dropping point

A rating of + indicates, on the first aspect, successful ordering and, on the second, correct statement of the effect of a variable; a rating of 0 indicates the same success but with some wavering or confusion; a rating of - indicates, on the first aspect, failure to order and, on the second, failure to state the correct effect of a variable.

Patterns of performance ratings on the 12 dimensions were grouped together to define stages of development, similar to those used by Piaget, although three further stages were added. Thus nine stages altogether were differentiated.

	Content		Method					
Stage and Descriptions of Achievements	**Ordering St. Wt. H.**	**Effect St. Wt. H.**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
IIIB. Finds correct effect of each factor and is sound on all aspects of method- may not infer from minimum testing, however must show some untested inference.	(a) + + +	+ + + (0 +)	+	+	+	+	+	+ or 0/-
	(b) + + +	or + (+ 0)	+	+	+	+	+	+/0
IIIB?A.Some failure in one aspect of performance -perhaps failure to exclude one factor, but method is good and includes some untested inference(c)	(a) + + +	+ +/0 +/0	+	+	+	0	0	-
perhaps some fault in method but succeeds in finding all the correct effects of factors(a) Some untested inference is required unless the performance is otherwise faultless (b)	(b) + + +	+ + +	+	+	+	+	-	-
	(c) + + +	(- +) + or (+ -)	+	+	+	+/0	+/0	-

	Content		Method					
Stage and Description of Achievements	**Ordering St. Wt. H.**	**Effect St. Wt. H.**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
III A?B (a)and(b) Finds exclusion very difficult and method, although mostly sound, shows no untested inferences or (c) although failing completely to exclude, has excellent method of investigation	(a) + + +	+ 0 0	+	+	+	+/0	-	-
	(b) + + +	(+ -) + or (- +)	+	+	+	+	-	-
	(c) + + +	+ - -	+	+	+	+	+	+

Content	Method							
Stage and Description of Achievements	**Ordering St. Wt. H.**	**Effect St. Wt. H.**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
III A(a) Fails to exclude weight and height (perhaps because of uncertain ordering) but method has few mistakes and may show some untested inferences, or (b) excludes one of weight and height with difficulty and has some shaky aspect to method and no untested inferences, or © excludes both weight and height with difficulty, but method is shaky throughout, although may show some untested inferences	(a) + +/0 +/0	+ - -	+	+	+	+/0	0	-
	(b) + + +	(0 -) + or (- 0)	+	+	+	0	-	-
	© + + +	+ 0 0	+	0	0	0	0/-	-

Content	Method							
Stage and Description of Achievements	**Ordering St. Wt. H.**	**Effect St. Wt. H.**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
IIIA?IIB(a) Fails to exclude weight and height (perhaps because of uncertain ordering) and method has one shaky point and no untested inferences, or	(a) +/0 +/0+/0	+ - -	+	(+	+	0 or	-	-)
(b) excludes one of weight and height with difficulty and method is shaky throughout with no untested inferences, or	(b)			(0	+	+	-	-)
© succeeds in finding correct effect of each factor, but only with difficulty for each one, and method also shows one shaky point, or (d) fails exclude weight and height and finds effect of string only with difficulty, but method has no shaky aspects although there is no untested inference	(c) + + +	(c) -) + or (- 0)	+	0	0	0	-	-
	© + + +	0 0 0	+	(+	+	- or	-	-)
				(0	+	+	-	-)
	(d) + + +	0 - -	+	+	+	+	-	-

Stage and Descriptions of Achievements	Content Ordering	Content Effects	Method (1)	(2)	(3)	(4)	(5)	(6)	
IIB?IIIA (a) Fails to exclude weight and height and method is weak throughout, but shows at least 0 on "varies only one factor to make a test"	(a)								
	+/0 +/0+/0	+ - -	+	+/0		0/-	0/-	-	-
or (b) excludes only one of weight and height with difficulty and method is shaky showing either 0 or – on "varies only one factor to make a test", or (c) although one of weight and height is excluded, method is completely unacceptable throughout	(b)								
	+ + +	+ (+/0 -) or (- +/0)	+	0/-		+/0	+/0	-	-
	©								
	+ + +	+ (+ -) or (- +)	+	-		-	-	-	-

Content	Method							
Stage and Description of Achievements	Ordering St. Wt. H.	Effect St. Wt. H.	(1)	(2)	(3)	(4)	(5)	(6)
IIB(a) Fails to exclude both weight and height and fails in method at least to vary only one to make a test and/or infer correctly as well, or (b) fails to find correct effect of string, although being able to exclude one of weight and height- and method shows failure on one of the two aspects "varies only one factor" and "varies and infers correctly"	(a) + +/0 +/0	+ - -	+	-	+/0	+/0	-	-
	(b) +/- + +	(0 +/0 -) or (0 - +/0)	+	-/0	(+/0 (-	+/0 or -	-	-) -)

Content	Method							
Stage and Description of Achievements	**Ordering St. Wt. H.**	**Effect St. Wt. H.**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
II B?A(a) Fails to exclude both weight and height and has difficulty finding correct role for string; method also fails either to vary only one factor, or to vary and infer correctly or (b) fails to find correct role for all three variables but method, although shaky,shows some ability to vary only one factor and vary and infer correctly	(a) + + +	0 - -	+	(-	+/0	+/0 or	-	-)
				(+/0	-	-	-	-)
	(b) +/0+/0+/0	- - -	+	0	0	0	-	-

Content	Method							
Stage and Description of Achievements	Ordering St. Wt. H.	Effect St. Wt. H.	(1)	(2)	(3)	(4)	(5)	(6)
IIA?B(a) Fails to exclude weigtht and height and either fails or has difficulty finding correct effect of string- method also fails/ or has to vary only factor one and to vary and infer correctly, or (b) fails to find correct effect of any variable and may be unable to order the effects as well- method noreover is extremely weak	(a)							
	+ +/0 +/0	0/- - -	+	0/-	-	-	-	-
	(b)			(0	-	-	-	-)
						or		
	+/0+/0+/0	- - -	0					
				(-	0	-	-	-)

2.4.2. Scoring and coding at age twelve (Fourth measurement occasion)

At measurement occasion 4 a new coding system was used:

For each experimental manipulation executed by the subject the selected values for each variable were marked in a table; thus, the sequence of attempts was noted on the scoring sheet. During the manipulations the subject had to answer questions concerning (1) hypotheses about possible relationships among the independent variables (factors: length, weight, and height of drop or impetus) and the dependent variable (intensity of effect: pendulum frequency) (2) expectations about what actually will happen when certain independent variables are manipulated; (3) the method of experimentation ("What are you doing?); (4) observations of the results ("What happens?"); and (5) the subject's reasoning about how to interpret and summarize the observed results ("Why?").

The stage assignment proceeded according to his answering and the actual manipulations. At measurement occasion 4, the coding system included six categories for the urban sample and five categories for the rural sample: For the latter the stages Ia and Ib were conflated to Stage I. The characteristics of the five stages according to the aspects noted above can be briefly described as follows:

Stage I: Preoperational

1). Hypotheses: No hypotheses about possible relationships are explicitly formulated or implicitly tested.

2). Expectations: There is an implicitly operative or explicitly stated anticipation that with changing the impetus (the strength of the push) given to the pendulum the motion of the pendulum will also change.

3) Method: Minimal requirements of experimental manipulations fail. The subject does not dissociate his own physical actions (pushing) from the pendulum's motion which should be independent of S' action.

4). Observation: Registration of the frequency of oscillations and changes in frequency is not correct and obviously influenced by the expectation that impetus is the operative variable. Expectation-bound illusions that a change in frequency occurs.

5) Conclusions: Frequency of oscillation is incorrectly explained by the strength of the push which S gives the pendulum.

Stage II-A: Early Concrete- operational

1). Hypotheses: Subject explicitly states or seems to know implicitly that there are a number of different independent variables to be considered.
But this does not mean that Subject is aware of all possible relationships that might be involved in the pendulum's movements.
Especially he/ she does not think about the possibility of "no- effect"-relationships.

2). Expectations: Subject expects that serially ordered (manipulated) values of one independent variable will always correspond to serially ordered changes in the frequency variable.

3). Method: Values (levels) of length and string and/or height of dropping point and/or weight are manipulated and serially ordered. But while manipulating the actually observed independent variable other variables are not actively or deliberately held constant. In fact there is a simultaneous manipulation of the observed and the unobserved variables, i.e. different independent variables are confounded.

4). Observation: Differences between observed frequencies are judged objectively and also ordered serially.

5). Conclusions: Empirical correspondences between the ordered levels of the length variables and the levels of the observed frequency are discovered. Subject is fully satisfied with this discovery of a single operative variable and feels no necessity to generate further evidence against other possible relationships.

Stage II-B: Concrete-operational

1). Hypotheses: (Same as in Stage II-A)

2). Expectations: Subject anticipates that serially ordered values of more than one independent variable (mostly the length and the weight variables) will always correspond to serially ordered changes in the frequency variable. Subject does not, however, have the expectation that there could be some independent variables whose serially ordered values always correspond to the same level of frequency.

3). Method: (Same as in Stage II-A)

4) Observation: (Same as in Stage II-A)

5).Conclusions: The observed results are interpreted in terms of correspondences between the ordered levels of all the considered independent variables (including length) and the ordered levels of the dependent variable. The subject does not know how to relate a set of ordered weights (or heights) to a set of equal frequencies of oscillation, i.e. he is unable to conceptualize the respective relationships in terms of "no effect".

Stage III-A: Early formal-operational

1) Hypotheses: Subject states explicitly or operates according to the implicit hypothesis that in principle an equivalence relationship between each of the independent variables (length, weight and height) and the dependent variable (frequency of oscillation) is possible.

2).Expectation: The Subject anticipates that besides the more easily discoverable equivalence relationship between length and frequency other equivalence relationships are also possible and that it will be necessary to investigate these relationships as well.

3). Method: Subject intends to separate out the variables under consideration, but actually has difficulties in distinguishing the independent variables while manipulating them. The Subject is not efficient in applying the method "all other things being equal". - If the focus of the empirical analysis is on the length variable, the subject will eventually manage to hold constant other factors and only vary the values of the length of the string. If the Subject tries to find out whether other variables than length are operative, then he/she does not manage to leave all those variables unchanged which at present are not considered.

4).Observation: (Same as in Stage II-A)

5). Conclusion: With regard to the "Length- Frequency hypothesis" the observed results are correctly interpreted as verifying evidence. But since there is no experimental evidence produced to exclude (falsify) the "weight-frequency hypothesis" and/or the "height-frequency-hypothesis", judgments referring to these hypotheses are either not conclusive or incorrect.

Stage III-B: Formal-operational

1). Hypotheses: Same as in Stage III-A

2). Expectation: Same as in Stage III-A

3). Method: Subject manages to isolate all the variables involved systematically by applying the method of varying only one variable at a time while holding "all other things constant".

4). Observation: Same as in Stage II-A

5). Conclusions: Subject correctly interprets the observed results as verifying the hypothesis that the length variable is operative and as falsifying the hypothesis that other variables are operative as well.
Subject can also generalize findings in one set of conditions to others which are appropriately similar. Subject understands that it is not necessary to check the effects of all possible values of a given variable.

2.4.3. Scoring and coding at age fifteen and seventeen (Fifth and sixth measurement occasion)

At measurement points 5 and 6, the stage assignment proceeded according to the coding system used at measurement point 4, but stage I was differentiated into the substages Ia and Ib. Thus the new coding system included six stages. The differences between Stage Ia and Ib concern the following aspects: A child ´s reasoning is judged to conform to Stage Ib, if he/ she forms hypotheses about possible influences of several variables. Thus the child realizes that the frequency of the pendulum depends on factors differing from the impetus.

Furthermore, two stage assignments were made, one of them taken by the interviewer, the other one was given by an independent coder.

2.5. List of Variables

2.5.1. Variable at age nine (third measurement occasion)

PEN3 Stage Score (six stages)

2.5.2. Variable at age twelve (fourth measurement occasion)

PEN4 Stage Score (five stages)

2.5.3. Variables at age fifteen (fifth measurement occasion)

PEN5 Stage Score (six stages/ Interviewer)

PEND5 Stage Score (six stages/ Coder)

PENHP5 Hypothesis before starting the experiment

PENNR5 Number of trials

PENRA5 Recognition of task equipment

PENRN5 Recognition of the name

PENKC5 Knowledge of the concept

PENOV5 Knowledge of the operative variable

PENCS5 Knowledge of pendulum from school

PENSUJ5 School subject

PENWHN5 Class

PENSCH5 Name of School

PENNR5 Same/ different School

2.6. Assessment of the nine year old children

Urban Sample

Table 1
Stage scores for the pendulum task
by nine year old children
Urban sample

Variable	I	II	IIB	IIB?IIIA	IIIA?IIB	IIIA	IIIB?A	IIIB	N
PEN3	0.319	0.513	0.009	0.053	0.027	0.009	0.035	0.035	113

Table 2
Stage scores for the pendulum task
at age 9
by teacher rating
Urban sample

Teacher rating					high				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.182	0.564	0.000	0.073	0.055	0.000	0.055	0.073	55
Teacher rating					**low**				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.448	0.466	0.017	0.034	0.000	0.017	0.017	0.000	58

Table 3
Stage scores for the pendulum task
at age 9
by gender
Urban sample

Gender					male				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.283	0.467	0.017	0.083	0.033	0.017	0.050	0.050	60
Gender					**female**				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.358	0.566	0.000	0.019	0.019	0.000	0.019	0.019	53

Table 4
Stage scores for the pendulum task
at age 9 by social class in two categories: low (SES 1-3) / high (SES 4-6)
Urban sample

SES					high				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.259	0.537	0.019	0.074	0.037	0.000	0.019	0.056	54
SES					**low**				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.373	0.492	0.000	0.034	0.017	0.017	0.051	0.017	59

Table 5
Stage scores for the pendulum task
at age 9 by social class in six categories
Urban sample

SES					low/low (SES 1)				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.500	0.438	0.000	0.000	0.000	0.000	0.063	0.000	16
SES					**low/high (SES 2)**				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.423	0.385	0.000	0.000	0.038	0.038	0.077	0.038	26
SES					**middle/low (SES 3)**				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.176	0.706	0.000	0.118	0.000	0.000	0.000	0.000	17

Continuation:

Table 5
Stage scores for the pendulum task
at age 9 by social- Economic Status in six categories
Urban sample

SES					middle/high (SES 4)				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.211	0.684	0.000	0.053	0.000	0.000	0.000	0.053	19
SES					**high/low (SES 5)**				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.300	0.400	0.050	0.150	0.050	0.000	0.000	0.050	20
SES					**high/high (SES 6)**				
Variable	**I**	**II**	**IIB**	**IIB?IIIA**	**IIIA?IIB**	**IIIA**	**IIIB?A**	**IIIB**	**N**
PEN3	0.267	0.533	0.000	0.000	0.067	0.000	0.067	0.067	15

2.7. Assessment of the twelve year old children

Urban Sample

Table 6
Stage scores for the pendulum task
at age 12
Urban sample

Variable	IA	IB	IIA	IIB	IIIA	IIIB	N
PEN4	0.018	0.055	0.118	0.518	0.091	0.200	110

Table 7
Stage scores for the pendulum task
at age 12 by teacher rating
Urban sample

Teacher rating				high			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.000	0.000	0.057	0.453	0.151	0.340	53
Teacher rating				**low**			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.035	0.105	0.175	0.579	0.035	0.070	57

Table 8
Stage scores for the pendulum task
at age 12 by gender
Urban sample

Gender				male			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.034	0.034	0.153	0.492	0.102	0.186	59
Gender				**female**			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.000	0.078	0.078	0.549	0.078	0.216	51

Table 9
Stage scores for the pendulum task
at age 12 by social class in two categories
Urban sample

SES				high			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.000	0.019	0.096	0.577	0.058	0.250	52
SES				**low**			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.034	0.086	0.138	0.466	0.121	0.155	58

Table 10
Stage scores for the pendulum task
at age 12 by social class in six categories
Urban sample

SES				low/low			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.000	0.133	0.133	0.400	0.133	0.200	15
SES				**low/high**			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.038	0.077	0.115	0.462	0.115	0.192	26
SES				**middle/low**			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.059	0.059	0.176	0.529	0.118	0.059	17
SES				**middle/high**			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.000	0.000	0.105	0.684	0.053	0.158	19

Continuation

Table 10
Stage scores for the pendulum task
at age 12 by social class in six categories
Urban sample

SES				high/low			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.000	0.000	0.100	0.550	0.050	0.300	20
SES				**high/high**			
Variable	**IA**	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.000	0.077	0.077	0.462	0.077	0.308	13

Rural Sample

Table 11
Stage scores for the pendulum task
at age 12
Rural sample

Variable	IB	IIA	IIB	IIIA	IIIB	N
PEN4	0.081	0.113	0.532	0.097	0.177	62

Table 12
Stage scores for the pendulum task
at age 12 by gender
Rural Sample

Gender			male			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.029	0.118	0.500	0.118	0.235	34
Gender			**female**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.143	0.107	0.571	0.071	0.107	28

Table 13
Stage Sccores for the pendulum task
at age 12 by region
Rural Sample

Region			North			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.053	0.105	0.526	0.105	0.211	19
Region			**West**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.53	0.158	0.526	0.105	0.158	19
Region			**South**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN4	0.125	0.083	0.542	0.083	0.167	24

2.8. Assessment of the fifteen year-old children

Urban Sample

Table 14
Stage scores of Interviewer for the pendulum task at age 15
Urban sample

Variable	IB	IIA	IIB	IIIA	IIIB	N
PEN5	0.028	0.104	0.425	0.208	0.236	106

Table 15
Stage scores of Interviewer for the pendulum task at age 15 by teacher rating
Urban sample

Teacher rating			high			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.038	0.340	0.208	0.415	53
Teacher rating			**low**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.057	0.170	0.509	0.208	0.057	53

Table 16
Stage scores of Interviewer for the pendulum task at age 15 by gender
Urban sample

Gender			male			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.018	0.089	0.393	0.214	0.286	56
Gender			**female**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.040	0.120	0.460	0.200	0.180	50

Table 17
Stage scores of Interviewer for the pendulum task at age 15 by social class in two categories
Urban sample

SES			high			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.039	0.059	0.490	0.137	0.275	51
SES			**low**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.018	0.145	0.364	0.273	0.200	55

Table 18
Stage scores of Interviewer for the pendulum task at age 15 by social class in six categories
Urban sample

SES			low/low (SES 1)			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.143	0.571	0.143	0.143	14
SES			**low/high (SES 2)**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.042	0.125	0.292	0.250	0.292	24
SES			**middle/low (SES 3)**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.176	0.294	0.412	0.118	17
SES			**middle/high (SES 4)**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.056	0.556	0.222	0.167	18

Continuation:

Table 18
Stage scores of Interviewer for the pendulum task
at age 15 by social class in six categories
Urban sample

SES			high/low (SES 5)			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.050	0.050	0.500	0.050	0.350	20
SES			**high/high (SES 6)**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.077	0.077	0.385	0.154	0.308	13

Table 19
Stage scores of Coder for the pendulum task
at age 15
Urban sample

Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.047	0.112	0.374	0.243	0.224	107

Table 20
Stage scores of Coder for the pendulum task
at age 15 by teacher rating
Urban sample

Teacher rating			high			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.000	0.038	0.302	0.283	0.377	53
Teacher rating			**low**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.093	0.185	0.444	0.204	0.074	54

Table 21
Stage scores of Coder for the pendulum task at age 15 by gender
Urban sample

Gender			male			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.053	0.105	0.333	0.211	0.298	57
Gender			**female**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.040	0.120	0.420	0.280	0.140	50

Table 22
Stage scores of Coder for the pendulum task at age 15 by social class in two categories
Urban sample

SES			high			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.039	0.078	0.451	0.176	0.255	51
SES			**low**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.054	0.143	0.304	0.304	0.196	56

Table 23
Stage scores of Coder for the pendulum task at age 15 by social class in six categories
Urban sample

SES			low/low (SES 1)			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.000	0.214	0.500	0.143	0.143	14
SES			**low/high (SES 2)**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.120	0.120	0.200	0.280	0.280	25

Continuation:

Table 23
Stage scores of Coder for the pendulum task
at age 15 by social class in six categories
Urban sample

SES			middle/low (SES 3)			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.000	0.118	0.294	0.471	0.118	17
SES			**middle/high (SES 4)**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.000	0.056	0.500	0.278	0.167	18
SES			**high/low (SES 5)**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.050	0.050	0.500	0.100	0.300	20
SES			**high/high (SES 6)**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.077	0.154	0.308	0.154	0.308	13

Table 24
Number of Trials for pendulum task
at age 15
Urban sample

Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.198	0.280	0.112	0.140	0.159	107

Table 25
Number of Trials for pendulum task
at age 15 by gender
Urban sample

Gender			male			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.228	0.351	0.211	0.105	0.105	57
Gender			**female**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.140	0.200	0.260	0.180	0.220	50

Table 26
Number of Trials for pendulum task
at age 15 by teacher rating
Urban sample

Teacher rating			high			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.208	0.245	0.264	0.132	0.151	53
Teacher rating			**low**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.167	0.315	0.204	0.148	0.167	54

Table 27
Number of Trials for pendulum task
at age 15 by social class in two categories
Urban sample

SES			high			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.196	0.314	0.235	0.176	0.078	51
SES			**low**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.179	0.250	0.232	0.107	0.232	56

Table 28
Number of Trials for pendulum task
at age 15 by social class in six categories
Urban sample

SES			low/low (SES 1)			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.143	0.143	0.286	0.072	0.357	14
SES			**low/high (SES 2)**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.240	0.200	0.160	0.200	0.200	25
SES			**middle/low (SES 3)**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.118	0.412	0.294	0.000	0.176	17
SES			**middle/high (SES 4)**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.056	0.389	0.222	0.278	0.056	18
SES			**high/low (SES 5)**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.250	0.350	0.200	0.150	0.050	20
SES			**high/high (SES 6)**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.308	0.154	0.308	0.077	0.154	13

Table 29
Adequacy of Hypothesis before task
at age 15
Urban sample

Variable	correct	incorrect	N
PENHP5	0.686	0.314	105

Table 30
Adequacy of Hypothesis before task
at age 15 by teacher rating
Urban sample

Teacher rating	high			low		
Variable	**correct**	**incorrect**	**N**	**correct**	**incorr.**	**N**
PENHP5	0.385	0.385	52	0.245	0.755	53

Table 31
Adequacy of Hypothesis before task
at age 15 by gender
Urban sample

Gender	male			female		
Variable	**correct**	**incorrect**	**N**	**correct**	**incorr.**	**N**
PENHP5	0.393	0.607	56	0.224	0.776	49

Table 32
Adequacy of Hypothesis before task
at age 15 by social class in two categories
Urban sample

SES	high			low		
Variable	**correct**	**incorrect**	**N**	**correct**	**incorr.**	**N**
PENHP5	0.300	0.700	50	0.327	0.673	55

Table 33
Adequacy of Hypothesis before task
at age 15 by social class in six categories
Urban sample

SES	low/low			low/high		
Variable	**correct**	**incorrect**	**N**	**correct**	**incorr.**	**N**
PENHP5	0.231	0.769	13	0.400	0.600	25
SES	**middle/low**			**middle/high**		
Variable	**correct**	**incorrect**	**N**	**correct**	**incorr.**	**N**
PENHP5	0.294	0.706	17	0.222	0.778	18

Continuation:

Table 33
Adequacy of Hypothesis before task
at age 15 by social class in six categories
Urban sample

SES	high/low			high/high		
Variable	**correct**	**incorrect**	**N**	**correct**	**incorr.**	**N**
PENHP5	0.368	0.632	19	0.308	0.692	13

Table 34
Recognition of Apparatus
at age 15
Urban sample

Variable	Yes	No	N
PENRA5	0.790	0.210	105

Table 35
Recognition of Apparatus
at age 15 by teacher rating
Urban sample

Teacher rating	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENRA5	0.788	0.212	52	0.792	0.208	53

Table 36
Recognition of Apparatus
at age 15 by gender
Urban sample

Gender	male			female		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENRA5	0.807	0.193	57	0.771	0.229	48

Table 37
Recognition of Apparatus
at age 15 by social class in two categories
Urban sample

SES	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENRA5	0.863	0.137	51	0.722	0.278	54

Table 38
Recognition of Apparatus
at age 15 by social class in six categories
Urban sample

SES	low/low			low/high		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENRA5	0.643	0.357	14	0.760	0.240	25
SES	**middle/low**			**middle/high**		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENRA5	0.733	0.267	15	0.889	0.111	18
SES	**high/low**			**high/high**		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENRA5	0.850	0.150	20	0.846	0.154	13

Table 39
Recognition of Name of Apparatus
at age 15
Urban sample

Variable	Yes	No	N
PENNR5	0.255	0.745	106

Table 40
Recognition of Name of Apparatus
at age 15 by teacher rating
Urban sample

Teacher rating	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENNR5	0.385	0.615	52	0.130	0.870	54

Table 41
Recognition of Name of Apparatus
at age 15 by gender
Urban sample

Gender	male			female		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENNR5	0.316	0.684	57	0.184	0.816	49

Table 42
Recognition of Name of Apparatus
at age 15 by social class in two categories
Urban sample

SES	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENNR5	0.340	0.660	50	0.179	0.821	56

Table 43
Recognition of Name of Apparatus
by the fifteen year-old children by social class in six categories
Urban sample

SES	low/low (SES 1)			low/high (SES 2)		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENNR5	0.143	0.857	14	0.160	0.840	25
SES	**middle/low (SES 3)**			**middle/high (SES 4)**		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENNR5	0.235	0.765	17	0.222	0.778	18

Continuation:

Table 43
Recognition of Name of Apparatus
by the fifteen year-old children by social class in six categories
Urban sample

SES	high/low (SES 5)			high/high (SES 6)		
Variable	Yes	No	N	Yes	No	N
PENNR5	0.474	0.526	19	0.308	0.692	13

Table 44
Recognition of Concept
at age 15
Urban sample

Variable	Yes	No	N
PENKC5	0.578	0.422	102

Table 45
Recognition of Concept
at age 15 by teacher rating
Urban sample

Teacher rating	high			low		
Variable	Yes	No	N	Yes	No	N
PENKC5	0.776	0.224	49	0.396	0.604	53

Table 46
Recognition of Concept
at age 15 by gender
Urban sample

Gender	male			female		
Variable	Yes	No	N	Yes	No	N
PENKC5	0.630	0.370	54	0.521	0.479	48

Table 47
Recognition of Concept
at age 15 by social class in two categories
Urban sample

SES	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENKC5	0.625	0.375	48	0.537	0.463	54

Table 48
Recognition of Concept
at age 15 by social class in six categories
Urban sample

SES	low/low (SES 1)			low/high (SES 2)		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENKC5	0.462	0.538	13	0.680	0.320	25
SES	**middle/low (SES 3)**			**middle/high (SES 4)**		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENKC5	0.375	0.625	16	0.625	0.375	16
SES	**high/low (SES 5)**			**high/high (SES 6)**		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENKC5	0.526	0.474	19	0.769	0.231	13

Table 49
Recognition of operative variable
at age 15
Urban sample

Variable	Yes	No	N
PENOV5	0.113	0.887	97

Table 50
Recognition of operative variable
at age 15 by teacher rating
Urban sample

Teacher rating	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENOV5	0.104	0.896	48	0.122	0.878	49

Table 51
Recognition of operative variable
at age 15 by gender
Urban sample

Gender	male			female		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENOV5	0.132	0.868	53	0.091	0.909	44

Table 52
Recognition of operative variable
at age 15 by social class in two categories
Urban sample

SES	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENOV5	0.156	0.844	45	0.077	0.923	52

Table 53
Recognition of operative variable
at age 15 by social class in six categories
Urban sample

SES	low/low (SES 1)			low/high (SES 2)		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENOV5	0.091	0.909	11	0.042	0.958	24
SES	**middle/low (SES 3)**			**middle/high (SES 4)**		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENOV5	0.118	0.882	17	0.133	0.867	15

Continuation:
Table 53

Recognition of operative variable
at age 15 by social class in six categories
Urban sample

SES	high/low (SES 5)			high/high (SES 6)		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENOV5	0.235	0.765	17	0.077	0.923	13

Table 54
Recognition of concept from school
at age 15
Urban sample

Variable	Yes	No	N
PENCS5	0.505	0.495	101

Table 55
Recognition of concept from school
at age 15 by teacher rating
Urban sample

Teacher rating	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENCS5	0.510	0.490	49	0.500	0.500	52

Table 56
Recognition of concept from school
at age 15 by gender
Urban sample

Gender	male			female		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENCS5	0.542	0.458	48	0.472	0.528	53

Table 57
Recognition of concept from school
at age 15 by social class in two categories
Urban sample

SES	high			low		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENCS5	0.553	0.447	47	0.463	0.537	54

Table 58
Recognition of concept from school
at age 15 by social class in six categories
Urban sample

SES	low/low (SES 1)			low/high (SES 2)		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENCS5	0.500	0.500	14	0.391	0.609	23
SES	**middle/low (SES 3)**			**middle/high (SES 4)**		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENCS5	0.529	0.471	17	0.467	0.533	15
SES	**high/low (SES 5)**			**high/high (SES 6)**		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENCS5	0.450	0.550	20	0.833	0.167	12

Table 59
Recognition of school subject
at age 15
Urban sample

Variable	don't know	Physics	Arithmetics	N
PENSUJ5	0.624	0.366	0.010	101

Table 60
Recognition of school subject
at age 15 by teacher rating
Urban sample

Teacher rating		high		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.612	0.367	0.020	49
Teacher rating		**low**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.635	0.365	0.000	52

Table 61
Recognition of school subject
at age 15 by gender
Urban sample

Gender		male		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.698	0.302	0.000	53
Gender		**female**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.542	0.438	0.021	48

Table 62
Recognition of school subject
at age 15 by social class in two categories
Urban sample

SES		high		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.596	0.383	0.021	47
SES		**low**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.648	0.352	0.000	54

Table 63
Recognition of school subject
at age 15 by social class in six categories
Urban sample

SES		low/low (SES 1)		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.714	0.286	0.000	14
SES		**low/high (SES 2)**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.652	0.348	0.000	23
SES		**middle/low (SES 3)**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.588	0.412	0.000	17
SES		**middle/high (SES 4)**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.600	0.400	0.000	15
SES		**high/low (SES 5)**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.700	0.300	0.000	20
SES		**high/high (SES 6)**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.417	0.500	0.083	12

Table 64
Recognition of grade
at age 15
Urban sample

Variable	no	3th	5th	6th	7th	8th	9th	N
PENSUJ5	0.574	0.010	0.010	0.020	0.228	0.149	0.010	101

Table 65
Recognition of grade
at age 15 by teacher rating
Urban sample

Teacher rating				high				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.571	0.000	0.020	0.041	0.245	0.102	0.020	49
Teacher rating				**low**				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.577	0.019	0.000	0.000	0.212	0.192	0.000	52

Table 66
Recognition of grade
at age 15 by gender
Urban sample

Gender				male				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.604	0.000	0.000	0.038	0.189	0.170	0.000	53
Gender				**female**				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.542	0.021	0.021	0.000	0.271	0.125	0.021	48

Table 67
Recognition of grade
at age 15 by social class in two categories
Urban sample

SES				high				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.553	0.000	0.000	0.043	0.277	0.128	0.000	47
SES				**low**				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.593	0.019	0.019	0.000	0.185	0.167	0.019	54

Table 68
Recognition of grade
at age 15 by social class in six categories
Urban sample

SES				low/low (SES 1)				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.571	0.071	0.000	0.000	0.214	0.143	0.000	14
SES				**low/high (SES 2)**				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.652	0.000	0.000	0.000	0.174	0.130	0.043	23
SES				**middle/low (SES 3)**				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.529	0.000	0.059	0.000	0.176	0.235	0.000	17
SES				**middle/high (SES 4)**				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.667	0.000	0.000	0.067	0.200	0.067	0.000	15
SES				**high/low (SES 5)**				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.600	0.000	0.000	0.000	0.350	0.050	0.000	20
SES				**high/high (SES 6)**				
Variable	**no**	**3th**	**5th**	**6th**	**7th**	**8th**	**9th**	**N**
PENSUJ5	0.333	0.000	0.000	0.083	0.250	0.333	0.000	12

Rural Sample

Table 69
Stage scores of Interviewer for the pendulum task at age 15
Rural sample

Variable	IB	IIA	IIB	IIIA	IIIB	N
PEN5	0.000	0.016	0.443	0.148	0.393	61

Table 70
Stage scores of Interviewer for the pendulum task at age 15 by gender
Rural sample

Gender			male			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.000	0.424	0.121	0.455	33
Gender			**female**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.036	0.464	0.179	0.321	28

Table 71
Stage scores of Interviewer for the pendulum task at age 15 by region
Rural sample

Region			North			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.000	0.263	0.316	0.421	19
Region			**West**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.000	0.500	0.167	0.333	18
Region			**South**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.042	0.542	0.000	0.417	24

Table 72
Stage scores of Coder for the pendulum task
at age 15
Rural sample

Variable	IB	IIA	IIB	IIIA	IIIB	N
PEN5B	0.000	0.033	0.459	0.131	0.377	61

Table 73
Stage scores of Coder for the pendulum task
at age 15 by gender
Rural sample

Gender			male			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.000	0.000	0.455	0.121	0.424	33
Gender			**female**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5B	0.000	0.071	0.464	0.143	0.321	28

Table 74
Stage scores of Coder for the pendulum task
at age 15 by region
Rural sample

Region			North			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.000	0.316	0.316	0.368	19
Region			**West**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.056	0.500	0.111	0.333	18
Region			**South**			
Variable	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**N**
PEN5	0.000	0.042	0.542	0.000	0.417	24

Table 75
Number of Trials for pendulum task
at age 15
Rural sample

Variable	3-6	7-10	11-14	15-18	>18	N
PENNR5	0.082	0.4100	0.311	0.181	0.098	61

Table 76
Number of Trials for pendulum task
at age 15 by gender
Rural sample

Gender			male			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.121	0.425	0.212	0.182	0.060	33
Gender			**female**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.036	0.393	0.250	0.179	0.144	28

Table 77
Number of Trials for pendulum task
at age 15 by region
Rural sample

Region			North			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.000	0.321	0.368	0.106	0.106	19
Region			**West**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.056	0.334	0.167	0.279	0.168	18
Region			**South**			
Variable	**3-6**	**7-10**	**11-14**	**15-18**	**>18**	**N**
PENNR5	0.167	0.458	0.167	0.167	0.042	24

Table 78
Adequacy of Hypothesis before task
at age 15
Rural sample

Variable	correct	incorrect	N
PENHP5	0.429	0.571	56

Table 79
Adequacy of Hypothesis before task
at age 15 by gender
Rural sample

Gender	male			female		
Variable	correct	incorrect	N	correct	incorr.	N
PENHP5	0.433	0.567	30	0.577	0.577	26

Table 80
Adequacy of Hypothesis before task
at age 15 by region
Rural sample

Region	North			West		
Variable	correct	incorrect	N	correct	incorr.	N
PENHP5	0.556	0.444	18	0.250	0.750	16

Region	South		
Variable	correct	incorrect	N
PENHP5	0.455	0.545	22

Table 81
Recognition of Apparatus
at age 15
Rural sample

Variable	Yes	No	N
PENRA5	0.754	0.246	61

Table 82
Recognition of Apparatus
at age 15 by gender
Rural sample

Gender	male			female		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENRA5	0.758	0.242	33	0.750	0.250	28

Table 83
Recognition of Apparatus
at age 15 by region
Rural sample

Region	North			West		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENRA5	0.684	0.316	19	0.500	0.500	18

Region	South		
Variable	**Yes**	**No**	**N**
PENRA5	1.000	0.000	24

Table 84
Recognition of Name of Apparatus
at age 15
Rural sample

Variable	Yes	No	N
PENNR5	0.250	0.750	60

Table 85
Recognition of Name of Apparatus
at age 15 by gender
Rural sample

Gender	male			female		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENNR5	0.344	0.656	32	0.143	0.857	28

Table 86
Recognition of Name of Apparatus
at age 15 by region
Rural sample

Region	North			West		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENNR5	0.389	0.611	18	0.056	0.944	18

Region	South		
Variable	**Yes**	**No**	**N**
PENNR5	0.292	0.708	24

Table 87
Recognition of Concept
at age 15
Rural sample

Variable	Yes	No	N
PENKC5	0.400	0.600	60

Table 88
Recognition of Concept
at age 15 by gender
Rural sample

Gender	male			female		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENKC5	0.531	0.469	32	0.250	0.750	28

Table 89
Recognition of Concept
at age 15 by region
Rural sample

Region	North			West		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENKC5	0.222	0.778	18	0.222	0.778	18

Continuation:

Table 89
Recognition of Concept
at age 15 by region
Rural sample

Region		South	
Variable	**Yes**	**No**	**N**
PENKC5	0.667	0.333	24

Table 90
Recognition of operative variable
at age 15
Rural sample

Variable	Yes	No	N
PENOV5	0.207	0.793	58

Table 91
Recognition of operative variable
at age 15 by gender
Rural sample

Gender	male			female		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENOV5	0.219	0.781	32	0.192	0.808	26

Table 92
Recognition of operative variable
at age 15 by region
Rural sample

Region	North			West		
Variable	**Yes**	**No**	**N**	**Yes**	**No**	**N**
PENOV5	0.375	0.625	16	0.111	0.889	18

Region		South	
Variable	**Yes**	**No**	**N**
PENKC5	0.167	0.833	27

Table 93
Recognition of concept from school at age 15
Rural sample

Variable	Yes	No	N
PENCS5	0.375	0.625	56

Table 94
Recognition of concept from school at age 15 by gender
Rural sample

Gender		male	
Variable	**Yes**	**No**	**N**
PENCS5	0.379	0.621	29
Gender		**female**	
Variable	**Yes**	**No**	**N**
PENCS5	0.370	0.630	27

Table 95
Recognition of concept from school at age 15 by region
Rural sample

Region		North	
Variable	**Yes**	**No**	**N**
PENCS5	0.833	0.167	18
Region		**West**	
Variable	**Yes**	**No**	**N**
PENCS5	0.133	0.867	15
Region		**South**	
Variable	**Yes**	**No**	**N**
PENCS5	0.174	0.826	23

Table 96
Recognition of school subject
at age 15
Rural sample

Variable	don't know	Physics	Arithmetics	N
PENSUJ5	0.800	0.200	0.000	55

Table 97
Recognition of school subject
at age 15 by gender
Rural sample

Gender		male		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.714	0.286	0.000	28
Gender		**female**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.889	0.174	0.000	27

Table 98
Recognition of school subject
at age 15 by region
Rural sample

Region		North		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.647	0.353	0.000	17
Region		**West**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.933	0.067	0.000	15
Region		**South**		
Variable	**don't know**	**Physics**	**Arithmetics**	**N**
PENSUJ5	0.826	0.174	0.000	23

Table 99

Recognition of grade by
at age 15
Rural sample

Variable	no	6th	7th	8th	9th	N
PENWH5	0.696	0.018	0.071	0.196	0.018	56

Table 100
Recognition of grade by
at age 15 by gender
Rural sample

Gender			male			
Variable	**no**	**6th**	**7th**	**8th**	**9th**	**N**
PENWH5	0.690	0.034	0.068	0.207	0.000	29
Gender			**female**			
Variable	**no**	**6th**	**7th**	**8th**	**9th**	**N**
PENWH5	0.704	0.000	0.074	0.185	0.037	27

Table 101
Recognition of grade by
at age 15 by region
Rural sample

Region			North			
Variable	**no**	**6th**	**7th**	**8th**	**9th**	**N**
PENWH5	0.278	0.000	0.167	0.500	0.056	18
Region			**West**			
Variable	**no**	**6th**	**7th**	**8th**	**9th**	**N**
PENWH5	0.933	0.000	0.000	0.067	0.000	15
Region			**South**			
Variable	**no**	**6th**	**7th**	**8th**	**9th**	**N**
PENWH5	0.870	0.043	0.043	0.043	0.000	23

3. Isolation of variables (application under "natural" conditions)

3.1. Description of the concept

The concept of the isolation of variables under "natural", i.e. under non-experimental applications (Kuhn & Brannock 1977) is logically analogous to the pendulum problem. As in the pendulum task the subject must isolate the operative variable and identify and exclude the non-operative and neutral variables by holding the latter constant. So far, the task follows the same logic as the pendulum task described above.

Differences between the tasks emerge with respect to two aspects: 1) with reference to the presentation of the task: The presentation of the performance and the amount of the subject's constructions are demanded of the subject him- or herself 2) with reference to the content of the application.

A few remarks about each point are in order:

Ad 1): In the pendulum task, the child is presented with a quasi-experimental test situation in which he or she has to construct and examine the problem of isolating the operative variable by experiment, through his or her own initiative and independent action. The subject in the Kuhn problem, on the other hand, is situated in a setting that provides no room for exploring the problem by manipulation, because the different empirical events are presented pictorially. A total of four constellations of events suffice to illustrate the multi-variate problem.

Ad 2): With this structurally homogeneous task, Kuhn and Brannock intended to construct a test to examine the application of formal operations in concrete and familiar domains that are in the range of the child's or adolescent's experience. The authors justify this concern by the increasing empirical evidence that the performance of formal operations depends to a considerable degree on application.

3.2. Description of the measures: Equipment and materials

The child is presented with a figure consisting of four individual pictures of equal size that are arranged in the form of a matrix including four cells. On each of the four cells an object or a person is shown in one of two possible states along with two or three different objects that have a causal impact on the former. In the plant-care task, for example, the matrix fits the following description (see Kuhn & Brannock (1977) for details):

A house plant is illustrated in each of the four pictures. On two of these the plant appears healthy and strong, and in two cases sick and weak. Next to the house plants are pictures of different chemicals with which the plants had been treated before: water from glasses filled to different levels, two kinds of fertilizer, and some plant spray. The plant in the first picture (healthy) had been given lots of water and white fertilizer; the plant in the second picture (sick) had been given lots of water, but dark fertilizer and plant spray; the plant in the third picture (healthy) had been given little water, white fertilizer, and plant spray; and the plant in the fourth picture (sick) had likewise been given little water, dark fertilizer, but no spray.

Three sets of the tasks were examined: 1) the plant-care task described above; 2) a task involving the resistance to corrosion of a roof covering, the object of causal influence, depending on different sorts of roof paintings and 3) a task involving the satisfaction of a child who had been given different gifts.

3.3. Investigation procedures and instructions

The "plant-care" task will serve to illustrate the investigation procedures and instructions.

The figure with the four plants is placed on a table; the subject sits down at the table and the investigator takes a chair next to the subject.

- "I raised some plants. I want to show them to you and ask you afterwards what is best to make plants thrive well."
- "Look at this plant (I points to the first plant). It looks healthy and strong. Every week I gave it a big glass of water (points to the representation of the glass in the picture) and white fertilizer (points)."
- "Now look at this plant (I points to the second plant). It doesn't look so healthy, the leaves are drooping. Every week I have given it a big glass of water, dark fertilizer (points), and a little plant spray (points)."
- "Now look at this plant (I points to the third plant). It looks like the first plant, healthy and strong. Every week I have given it a little glass of water (points), white fertilizer (points), and a little bit of plant spray too (points)."
- "Now look at the last plant (I points to the fourth plant). Like the second plant, it doesn't look so healthy. The leaves are drooping. Every week I have given it a little glass of water (points) and dark fertilizer (points)."
- "I have another plant at home, like these plants here, and I want it to grow healthy and strong. I gave my plant a small glass of water (points to the figure of a small glass of water that is laying next to the large figure) and white fertilizer (point to the figure of the white fertilizer that is laying next to the large figure). But I didn't give the plant any plant spray."
- Question A: "How do you think my plant is doing? Is it healthy or is it not doing well?"

Subject responds. (The answer is recorded.)

- Question B "How do you know that? Why do you think that's right?"

Subject responds. (The reason is recorded.)

- Question C "Does the plant spray have an influence on whether the plant is healthy or not?"

Subject responds. (The answer is recorded.)

- Question D "Why do you think that's so?"

Subject responds. (The reason is recorded.)

- Question E "Does the water have an influence on whether the plant is healthy or not?"

Subject responds. (The reason is recorded.)

The subject has to identify the variable "white fertilizer" (in contrast to "black fertilizer") as operative and effective in relation to the plant's health. This is achieved by isolating the operative variable and excluding both the non-operative and the neutral variable.

The latter differ in the following manner: The non-operative variable, the plant-spray in the case presented above, is presented in two of the four pictures only, whereas the neutral variable is shown in each picture but with different values.

The order of presentation of the task was fixed: The testing started with the presentation of the plant task, it was continued by the roof task, and finally the toy task had to be solved by the child.

Isolation of variables in natural context was investigated at ages of 12 and 15 years both in the urban and the rural samples, while at age 17 only the urban subjects were tested. In both samples the presentation of the task was similar but at the age of twelve the variables investigated differed for both samples.

3.4. Scoring instructions and coding rules

At first, for each task the individual answer pattern based on the children´s responses to questions A through D was constructed. Second, accordingly a pattern score ranging from 0-5 was given which was used for the first stage assignment. Third, a second score, the level score, also ranging from 0-5, was given. It was based both on the pattern score and the interviewer´s records on the scoring sheet. Furthermore, information about the children´s attempts to identify the operative, the non-operative and the neutral variable was determined separately and the interviewer recorded whether the child founded his/her solutions on evidence. Finally the interviewer had to note his impressions concerning the certainty of the child´s responses. He/ she had to determine, whether the subject´s problem solving approach appeared insecure, hesitant-reflective or decided-certain.

The assignment of stage scores to the patterns resulting from the child's answers to questions A through D proceeded as follows:

	Number of Pattern								
Items	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
A	incorr.	corr.	incorr.	corr.	corr.	incorr.	corr.	corr.	corr.
B	incorr.	incorr.	incorr.	incorr.	corr.	incorr.	corr.	incorr.	corr.
C	incorr.	incorr.	corr.	corr.	incorr.	corr.	corr.	corr.	corr.
D	incorr.	incorr.	incorr.	incorr.	incorr.	corr.	incorr.	corr.	corr.
Score	**0**	**1**	**1**	**2**	**3**	**3**	**4**	**4**	**5**

The level score assignment was founded on the following stage definitions:

Level 0 : The child shows no attempt to isolate the operative (or non-operative) variable.

Level I: The child tries to isolate the operative (or the non-operative) variable. If the correct variable is isolated (this is not necessary), then the justification or explanation is incorrect, i.e. some logical confusion emerges.

Level II: The child manages to isolate either the operative or the non-operative variables correctly, but not both, shows no logical confusions in the explanation, but the information is not rich enough to score on Level III.

Levels III:

(a) Level III_2 The isolation of the operative variable and the explanation are correct, but the child fails to isolate and/or explain the non-operative variable.

(b) Level III_3 The explanation of the operative variable shows some inconsistencies but isolation and explanation of the non-operative variable are both correct in view of the operative variable.

For further analyses Level III_2 and Level III_3 were matched.

Level IV: Both the operative and non-operative variable are isolated correctly. The explanations are neither illogical nor wrong, but not quite satisfactory- often due to insufficient information.

Level V: The child isolates both the operative and the non-operative variables correctly and provides adequate explanations.

3.5. List of variables

3.5.1. Variables at age twelve (fourth measurement occasion) / Urban sample

RIVHNR4	Pattern Number/ House
RIVP400	Pattern Score/ Plant
RIVP401	Level Score/ Plant
RIVP402	Operative Variable/ Plant
RIVPE402	Use of Evidence for Operative Variable / Plant
RIVP403	Non-Operative Variable/ Plant
RIVPE403	Use of Evidence for Non-Operative Variable/ Plant
RIVP404	Neutral Variable/ Plant
RIVPSPE4	Special Remarks/ Plant
RIVHNR4	Pattern Number/ House
RIVH400	Pattern Score/ House
RIVH401	Level Score/ House
RIVH402	Operative Variable/ House
RIVHE402	Use of Evidence for Operative Variable / House
RIVH403	Non-Operative Variable/ House
RIVHE403	Use of Evidence for Non-Operative Variable/ House
RIVH404	Neutral Variable/ House
RIVHSPE4	Special Remarks/ House
RIVTNR4	Pattern Number/ Toys
RIVT400	Pattern Score/ Toys
RIVT401	Level Score/ Toys
RIVT402	Operative Variable/ Toys
RIVTE402	Use of Evidence for Operative Variable / Toys
RIVT403	Non-Operative Variable/ Toys

RIVTE403	Use of Evidence for Non-Operative Variable/ Toys
RIVT404	Neutral Variable/ Toys
RIVTSPE4	Special Remarks/ Toys

3.5.2. Variables at age twelve (fourth measurement occasion) / Rural sample

IVP400	Pattern Score/ Plant
IVP401	Level Score/ Plant
IVP402	Operative Variable/ Plant
IVP403	Non-Operative Variable/ Plant
IVP404	Neutral Variable/ Plant
IVP405	Impression/ Plant
IVH400	Pattern Score/ House
IVH401	Level Score/ House
IVH402	Operative Variable/ House
IVH403	Non-Operative Variable/ House
IVH404	Neutral Variable/ House
IVH405	Impression/ House
IVT400	Pattern Score/ Toys
IVT401	Level Score/ Toys
IVT402	Operative Variable/ Toys
IVT403	Non-Operative Variable/ Toys
IVT404	Neutral Variable/ Toys
IVT405	Impression/ Toys

3.5.3. Variables at age fifteen (fourth measurement occasion)

IVMEM5	Recognition of earlier test
IVPNR5	Pattern Number/ Plant
IVP500	Pattern Score/ Plant
IVP501	Level Score/ Plant
IVP502	Operative Variable/ Plant
IVPE502	Use of Evidence for Operative Variable / Plant
IVP503	Non-Operative Variable/ Plant
IVPE503	Use of Evidence for Non-Operative Variable/ Plant
IVP504	Neutral Variable/ Plant
IVPE504	Use of Evidence for Neutral Variable/ Plant
IVP505	Impression/ Plant
IVHNR5	Pattern Number/ House
IVH500	Pattern Score/ House
IVH501	Level Score/ House
IVH502	Operative Variable/ House
IVHE502	Use of Evidence for Operative Variable / House
IVH503	Non-Operative Variable/ House
IVHE503	Use of Evidence for Non-Operative Variable/ House
IVH504	Neutral Variable/ House
IVHE504	Use of Evidence for Neutral Variable/ House
IVH505	Impression/ House
IVTNR5	Pattern Number/ Toys
IVT500	Pattern Score/ Toys
IVT501	Level Score/ Toys
IVT502	Operative Variable/ Toys
IVTE502	Use of Evidence for Operative Variable / Toys
IVT503	Non-Operative Variable/ Toys
IVTE503	Use of Evidence for Non-Operative Variable/ Toys

IVT504	Neutral Variable/ Toys
IVTE504	Use of Evidence for Neutral Variable/ Toys
IVT505	Impression/ Toys

3.5.1. Variables at age seventeen (sixth measurement occasion)

IVMEM6	Recognition of earlier test
IVPNR6	Pattern Number/ Plant
IVP600	Pattern Score/ Plant
IVP601	Level Score/ Plant
IVP602	Operative Variable/ Plant
IVPE602	Use of Evidence for Operative Variable / Plant
IVP603	Non-Operative Variable/ Plant
IVPE603	Use of Evidence for Non-Operative Variable/ Plant
IVP604	Neutral Variable/ Plant
IVPE604	Use of Evidence for Neutral Variable/ Plant
IVP605	Impression/ Plant
IVHNR6	Pattern Number/ House
IVH600	Pattern Score/ House
IVH601	Level Score/ House
IVH602	Operative Variable/ House
IVHE602	Use of Evidence for Operative Variable / House
IVH603	Non-Operative Variable/ House
IVHE603	Use of Evidence for Non-Operative Variable/ House
IVH604	Neutral Variable/ House
IVHE604	Use of Evidence for Neutral Variable/ House
IVH605	Impression/ House
IVTNR6	Pattern Number/ Toys
IVT600	Pattern Score/ Toys
IVT601	Level Score/ Toys

IVT602	Operative Variable/ Toys
IVTE602	Use of Evidence for Operative Variable / Toys
IVT603	Non-Operative Variable/ Toys
IVTE603	Use of Evidence for Non-Operative Variable/ Toys
IVT604	Neutral Variable/ Toys
IVTE604	Use of Evidence for Neutral Variable/ Toys
IVT605	Impression/ Toys

3.6. Assessment of the twelve year old children

Urban Sample

Table 1
Pattern Score for the isolation of variables task
at age 12
Urban sample

Variable	Task	0	1	2	3	4	5	N
RIVP400	Plant Task	0.327	0.182	0.045	0.200	0.036	0.209	110
RIVH400	House Task	0.291	0.164	0.036	0.182	0.064	0.264	110
RIVT400	Toy Task	0.300	0.136	0.045	0.164	0.109	0.245	110

Table 2
Pattern Score for the isolation of variables task
at age 12 by teacher rating
Urban sample

Teacher Rating		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.283	0.113	0.057	0.208	0.038	0.302	53
RIVH400	House Task	0.189	0.113	0.038	0.189	0.075	0.396	53
RIVT400	Toy Task	0.132	0.113	0.075	0.132	0.189	0.358	53
Teacher Rating		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.368	0.246	0.035	0.193	0.035	0.123	57
RIVH400	House Task	0.386	0.211	0.035	0.175	0.053	0.140	57
RIVT400	Toy Task	0.456	0.158	0.018	0.193	0.035	0.140	57

Table 3
Pattern Score for the isolation of variables task
at age 12
by gender
Urban sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.339	0.203	0.034	0.169	0.068	0.186	59
RIVH400	House Task	0.373	0.153	0.017	0.186	0.017	0.254	59
RIVT400	Toy Task	0.339	0.136	0.034	0.153	0.102	0.237	59
Gender		**female**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.314	0.157	0.059	0.235	0.000	0.235	51
RIVH400	House Task	0.196	0.176	0.059	0.176	0.118	0.275	51
RIVT400	Toy Task	0.255	0.137	0.059	0.176	0.118	0.255	51

Table 4
Pattern Score for the isolation of variables task
at age 12
by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.250	0.173	0.058	0.250	0.000	0.269	52
RIVH400	House Task	0.250	0.135	0.038	0.135	0.096	0.346	52
RIVT400	Toy Task	0.308	0.038	0.077	0.192	0.135	0.250	52
SES		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.397	0.190	0.034	0.155	0.069	0.155	58
RIVH400	House Task	0.328	0.190	0.034	0.224	0.034	0.190	58
RIVT400	Toy Task	0.293	0.224	0.017	0.138	0.086	0.241	58

Table 5
Pattern Score for the isolation of variables task
at age 12
by social class in six categories
Urban sample

SES		high/high (SES 6)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.231	0.077	0.154	0.154	0.000	0.385	13
RIVH400	House Task	0.231	0.000	0.000	0.154	0.077	0.538	13
RIVT400	Toy Task	0.154	0.000	0.077	0.231	0.000	0.538	13
SES		**high/low (SES 5)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.250	0.150	0.000	0.300	0.000	0.300	20
RIVH400	House Task	0.200	0.200	0.000	0.200	0.100	0.300	20
RIVT400	Toy Task	0.300	0.100	0.000	0.100	0.300	0.200	20
SES		**middle/high (SES 4)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.263	0.263	0.053	0.263	0.000	0.158	19
RIVH400	House Task	0.316	0.158	0.105	0.053	0.105	0.263	19
RIVT400	Toy Task	0.421	0.000	0.158	0.263	0.053	0.105	19
SES		**middle/low (SES 3)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.588	0.235	0.000	0.000	0.059	0.118	17
RIVH400	House Task	0.412	0.235	0.059	0.176	0.000	0.118	17
RIVT400	Toy Task	0.235	0.471	0.059	0.000	0.059	0.176	17
SES		**low/high (SES 2)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.308	0.231	0.077	0.154	0.077	0.154	26
RIVH400	House Task	0.269	0.154	0.038	0.231	0.038	0.269	26
RIVT400	Toy Task	0.346	0.192	0.000	0.077	0.115	0.269	26

Continuation:
Table 5
Pattern Score for the isolation of variables task
at age 12
by social class in six categories
Urban sample

SES		low/low (SES 1)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP400	Plant Task	0.333	0.067	0.000	0.333	0.067	0.200	15
RIVH400	House Task	0.333	0.200	0.000	0.267	0.067	0.133	15
RIVT400	Toy Task	0.267	0.000	0.000	0.400	0.067	0.267	15

Table 6
Level score for the isolation of variable task
at age 12
Urban sample

Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.309	0.127	0.218	0.091	0.109	0.145	110
RIVH401	House Task	0.282	0.127	0.136	0.127	0.236	0.091	110
RIVT401	Toy Task	0.282	0.109	0.155	0.073	0.300	0.082	110

Table 7
Level score for the isolation of variable task
at age 12 by teacher rating
Urban sample

Teacher Rating		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.264	0.075	0.189	0.113	0.132	0.226	53
RIVH401	House Task	0.170	0.094	0.151	0.113	0.340	0.132	53
RIVT401	Toy Task	0.113	0.075	0.113	0.113	0.472	0.113	53
Teacher Rating		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.351	0.175	0.246	0.070	0.088	0.070	57
RIVH401	House Task	0.386	0.158	0.123	0.140	0.140	0.053	57
RIVT401	Toy Task	0.439	0.140	0.193	0.035	0.140	0.053	57

Table 8
Level score for the isolation of variable task
at age 12 by gender
Urban sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.339	0.119	0.220	0.085	0.102	0.136	59
RIVH401	House Task	0.356	0.136	0.153	0.068	0.203	0.085	59
RIVT401	Toy Task	0.339	0.102	0.153	0.051	0.254	0.102	59
Gender		**female**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.275	0.137	0.216	0.98	0.118	0.157	51
RIVH401	House Task	0.196	0.118	0.118	0.196	0.275	0.098	51
RIVT401	Toy Task	0.216	0.118	0.157	0.098	0.353	0.059	51

Table 9
Level score for the isolation of variable task
at age 12 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.250	0.115	0.269	0.058	0.115	0.192	52
RIVH401	House Task	0.231	0.154	0.058	0.115	0.308	0.135	52
RIVT401	Toy Task	0.288	0.038	0.115	0.096	0.365	0.096	52
SES		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.362	0.138	0.172	0.121	0.103	0.103	58
RIVH401	House Task	0.328	0.103	0.207	0.138	0.172	0.052	58
RIVT401	Toy Task	0.276	0.172	0.190	0.052	0.241	0.069	58

Table 10
Level score for the isolation of variable task
at age 12 by social class in six categories
Urban sample

SES		high/high (SES 6)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.231	0.000	0.231	0.154	0.077	0.308	13
RIVH401	House Task	0.231	0.000	0.154	0.077	0.385	0.154	13
RIVT401	Toy Task	0.154	0.000	0.154	0.077	0.462	0.154	13
SES		**high/low (SES 5)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.250	0.050	0.350	0.050	0.150	0.150	20
RIVH401	House Task	0.150	0.250	0.050	0.150	0.300	0.100	20
RIVT401	Toy Task	0.250	0.100	0.100	0.050	0.400	0.100	20
SES		**middle/high (SES 4)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.263	0.263	0.211	0.000	0.105	0.158	19
RIVH401	House Task	0.316	0.158	0.000	0.105	0.263	0.158	19
RIVT401	Toy Task	0.421	0.000	0.105	0.158	0.263	0.053	19
SES		**middle/low (SES 3)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.529	0.235	0.059	0.059	0.118	0.000	17
RIVH401	House Task	0.412	0.176	0.118	0.176	0.118	0.000	17
RIVT401	Toy Task	0.176	0.412	0.176	0.059	0.118	0.059	17
SES		**low/high (SES 2)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.269	0.154	0.231	0.115	0.115	0.115	26
RIVH401	House Task	0.269	0.077	0.231	0.115	0.231	0.077	26
RIVT401	Toy Task	0.346	0.115	0.115	0.038	0.308	0.077	26

Continuation:

Table 10
Level score for the isolation of variable task
at age 12 by social class in six categories
Urban sample

SES		low/low (SES 1)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
RIVP401	Plant Task	0.333	0.000	0.200	0.200	0.067	0.200	15
RIVH401	House Task	0.333	0.067	0.267	0.133	0.133	0.067	15
RIVT401	Toy Task	0.267	0.000	0.333	0.067	0.267	0.067	15

Table 11
Identification of operative variable
at age 12
Urban sample

Variable	Task	no identifi-cation	positive operative Variable	pos. & neg. operative Variable	N
RIVP402	Plant Task	0.550	0.211	0.239	109
RIVH402	House Task	0.431	0.413	0.156	109
RIVT402	Toy Task	0.472	0.370	0.157	108

Table 12
Identification of operative variable
at age 12 by teacher rating
Urban sample

Teacher Rating		high			
Variable	**Task**	**no identification**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.500	0.173	0.327	52
RIVH402	House Task	0.308	0.481	0.212	52
RIVT402	Toy Task	0.288	0.519	0.192	52
Teacher Rating		**low**			
Variable	**Task**	**no identification**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.596	0.246	0.158	57
RIVH402	House Task	0.544	0.351	0.105	57
RIVT402	Toy Task	0.643	0.232	0.125	56

Table 13
Identification of operative variable
at age 12 by gender
Urban sample

Gender		male			
Variable	**Task**	**no identification**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.525	0.237	0.237	59
RIVH402	House Task	0.508	0.339	0.153	59
RIVT402	Toy Task	0.483	0.310	0.207	59
Gender		**female**			
Variable	**Task**	**no identification**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.580	0.180	0.240	50
RIVH402	House Task	0.340	0.500	0.160	50
RIVT402	Toy Task	0.460	0.440	0.100	50

Table 14
Identification of operative variable
at age 12 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high			
Variable	**Task**	**no identification**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.490	0.235	0.275	51
RIVH402	House Task	0.353	0.471	0.176	51
RIVT402	Toy Task	0.462	0.346	0.192	52
SES		**low**			
Variable	**Task**	**no identification**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.603	0.190	0.207	58
RIVH402	House Task	0.500	0.362	0.138	58
RIVT402	Toy Task	0.482	0.393	0.125	56

Table 15
Identification of operative variable
at age 12 by social class in six categories
Urban sample

SES		high/high (SES 6)			
Variable	**Task**	**no identification**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.385	0.231	0.385	13
RIVH402	House Task	0.308	0.462	0.231	13
RIVT402	Toy Task	0.385	0.385	0.231	13
SES		**high/low (SES 5)**			
Variable	**Task**	**no identification**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.526	0.211	0.263	19
RIVH402	House Task	0.400	0.500	0.100	20
RIVT402	Toy Task	0.350	0.400	0.250	20

Continuation:
Table 15
Identification of operative variable
at age 12 by social class in six categories
Urban sample

SES		middle/high (SES 4)			
Variable	**Task**	**no identifi-cation**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.526	0.263	0.211	19
RIVH402	House Task	0.333	0.444	0.222	18
RIVT402	Toy Task	0.632	0.263	0.105	19
SES		**middle/low (SES 3)**			
Variable	**Task**	**no identifi-cation**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.706	0.176	0.118	17
RIVH402	House Task	0.588	0.294	0.118	17
RIVT402	Toy Task	0.471	0.353	0.176	17
SES		**low/high (SES 2)**			
Variable	**Task**	**no identifi-cation**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.500	0.269	0.231	26
RIVH402	House Task	0.462	0.423	0.115	26
RIVT402	Toy Task	0.440	0.440	0.120	25
SES		**low/low (SES 1)**			
Variable	**Task**	**no identifi-cation**	**positive operative Variable**	**pos. & neg. operative Variable**	**N**
RIVP402	Plant Task	0.667	0.067	0.267	15
RIVH402	House Task	0.465	0.333	0.200	15
RIVT402	Toy Task	0.571	0.357	0.071	14

Table 16
Identification of non-operative variable
at age 12
Urban sample

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
RIVP403	Plant Task	0.495	0.073	0.110	0.321	109
RIVH403	House Task	0.473	0.055	0.064	0.409	110
RIVT403	Toy Task	0.445	0.027	0.082	0.445	110

Table 17
Identification of non-operative variable
at age 12 by teacher rating
Urban sample

Teacher Rating high

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
RIVP403	Plant Task	0.396	0.075	0.113	0.415	53
RIVH403	House Task	0.340	0.075	0.057	0.528	53
RIVT403	Toy Task	0.245	0.038	0.113	0.604	53

Teacher Rating low

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
RIVP403	Plant Task	0.589	0.071	0.107	0.232	56
RIVH403	House Task	0.596	0.035	0.070	0.298	57
RIVT403	Toy Task	0.632	0.018	0.053	0.298	57

Table 18
Identification of non-operative variable
at age 12 by gender
Urban sample

Gender		male				
Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
RIVP403	Plant Task	0.534	0.052	0.103	0.310	58
RIVH403	House Task	0.559	0.034	0.085	0.322	59
RIVT403	Toy Task	0.508	0.000	0.068	0.424	59
Gender		**female**				
Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
RIVP403	Plant Task	0.451	0.098	0.118	0.333	51
RIVH403	House Task	0.373	0.078	0.039	0.510	51
RIVT403	Toy Task	0.373	0.059	0.098	0.471	51

Table 19
Identification of non-operative variable
at age 12 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
RIVP403	Plant Task	0.451	0.118	0.098	0.333	51
RIVH403	House Task	0.404	0.058	0.038	0.500	52
RIVT403	Toy Task	0.404	0.058	0.058	0.481	52
SES		**low**				
Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
RIVP403	Plant Task	0.534	0.034	0.121	0.310	58
RIVH403	House Task	0.534	0.052	0.086	0.328	58
RIVT403	Toy Task	0.483	0.000	0.103	0.414	58

Table 20
Identification of non-operative variable at age 12 by social class in six categories Urban sample

SES		high/high (SES 6)				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
RIVP403	Plant Task	0.333	0.083	0.083	0.500	13
RIVH403	House Task	0.308	0.000	0.077	0.615	13
RIVT403	Toy Task	0.154	0.077	0.000	0.769	13
SES		**high/low (SES 5)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
RIVP403	Plant Task	0.450	0.200	0.050	0.300	20
RIVH403	House Task	0.400	0.050	0.000	0.550	20
RIVT403	Toy Task	0.500	0.050	0.050	0.400	20
SES		**middle/high (SES 4)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
RIVP403	Plant Task	0.526	0.053	0.158	0.263	19
RIVH403	House Task	0.474	0.105	0.053	0.368	19
RIVT403	Toy Task	0.474	0.053	0.105	0.368	19
SES		**middle/low (SES 3)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
RIVP403	Plant Task	0.706	0.000	0.059	0.235	17
RIVH403	House Task	0.647	0.000	0.000	0.353	17
RIVT403	Toy Task	0.471	0.000	0.235	0.294	17

Continuation:

Table 20
Identification of non-operative variable
at age 12 by social class in six categories
Urban sample

SES		low/high (SES 2)				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
RIVP403	Plant Task	0.500	0.077	0.154	0.269	26
RIVH403	House Task	0.462	0.115	0.115	0.308	26
RIVT403	Toy Task	0.538	0.000	0.077	0.385	26
SES		**low/low (SES 1)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
RIVP403	Plant Task	0.400	0.000	0.133	0.467	15
RIVH403	House Task	0.533	0.000	0.133	0.333	15
RIVT403	Toy Task	0.400	0.000	0.000	0.600	15

Table 21
Identification of neutral variable
at age 12
Urban sample

Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
RIVP404	Plant Task	0.045	0.027	0.455	0.082	0.391	110
RIVH404	House Task	0.082	0.055	0.364	0.109	0.391	110
RIVT404	Toy Task	0.036	0.064	0.409	0.118	0.373	110

Table 22
Identification of neutral Variable
at age 12 by teacher rating
Urban sample
Teacher Rating high

Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
RIVP404	Plant Task	0.038	0.000	0.396	0.113	0.453	53
RIVH404	House Task	0.057	0.019	0.283	0.170	0.472	53
RIVT404	Toy Task	0.000	0.057	0.283	0.208	0.453	53

Continuation:

Table 22
Identification of neutral variable
at age 12 by teacher rating
Urban sample

Teacher Rating **low**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
RIVP404	Plant Task	0.053	0.053	0.509	0.053	0.333	57
RIVH404	House Task	0.105	0.088	0.439	0.053	0.316	57
RIVT404	Toy Task	0.071	0.070	0.526	0.035	0.298	57

Table 23
Identification of neutral variable
at age 12 by gender
Urban sample

Gender **male**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
RIVP404	Plant Task	0.017	0.017	0.508	0.068	0.390	59
RIVH404	House Task	0.068	0.034	0.424	0.119	0.356	59
RIVT404	Toy Task	0.034	0.068	0.441	0.136	0.322	59

Gender **female**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
RIVP404	Plant Task	0.078	0.039	0.392	0.098	0.392	51
RIVH404	House Task	0.098	0.078	0.294	0.098	0.431	51
RIVT404	Toy Task	0.039	0.059	0.373	0.098	0.431	51

Table 24
Identification of neutral variable
at age 12 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
RIVP404	Plant Task	0.019	0.038	0.423	0.154	0.365	52
RIVH404	House Task	0.019	0.058	0.365	0.154	0.404	52
RIVT404	Toy Task	0.038	0.058	0.385	0.154	0.365	52
SES		**low**					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
RIVP404	Plant Task	0.069	0.017	0.483	0.017	0.414	58
RIVH404	House Task	0.138	0.052	0.362	0.069	0.379	58
RIVT404	Toy Task	0.034	0.069	0.431	0.086	0.379	58

Table 25
Identification of neutral variable
at age 12 by social class in six categories
Urban sample

SES		high/high (SES 6)					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
RIVP404	Plant Task	0.000	0.077	0.385	0.231	0.308	13
RIVH404	House Task	0.000	0.077	0.308	0.154	0.462	13
RIVT404	Toy Task	0.000	0.000	0.385	0.231	0.385	13
SES		**high/low (SES 5)**					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
RIVP404	Plant Task	0.000	0.000	0.500	0.100	0.400	19
RIVH404	House Task	0.000	0.050	0.400	0.200	0.350	20
RIVT404	Toy Task	0.000	0.100	0.250	0.200	0.450	20

Continuation:
Table 25
Identification of neutral variable
at age 12 by social class in six categories
Urban sample

SES		middle/high (SES 4)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
RIVP404	Plant Task	0.053	0.053	0.368	0.158	0.368	19
RIVH404	House Task	0.053	0.053	0.368	0.105	0.421	19
RIVT404	Toy Task	0.106	0.053	0.526	0.053	0.263	19
SES		**middle/low (SES 3)**					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
RIVP404	Plant Task	0.118	0.059	0.471	0.000	0.353	17
RIVH404	House Task	0.118	0.000	0.412	0.000	0.471	17
RIVT404	Toy Task	0.000	0.059	0.647	0.000	0.294	17
SES		**low/high (SES 2)**					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
RIVP404	Plant Task	0.000	0.000	462	0.000	0.538	26
RIVH404	House Task	0.115	0.115	0.269	0.077	0.423	26
RIVT404	Toy Task	0.077	0.077	0.269	0.077	0.500	26
SES		**low/low (SES 1)**					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
RIVP404	Plant Task	0.133	0.000	0.533	0.067	0.267	15
RIVH404	House Task	0.200	0.000	0.467	0.133	0.200	15
RIVT404	Toy Task	0.000	0.067	0.467	0.200	0.267	15

Table 26
Use of evidence for identification
of operative variable
at age 12
Urban sample

Variable	Task	0	1	2	3	5	N
RIVPE402	Plant Task	0.027	0.155	0.009	0.291	0.518	110
RIVHE402	House Task	0.082	0.145	0.009	0.264	0.500	110
RIVTE402	Toy Task	0.073	0.118	0.018	0.282	0.509	110

Table 27
Use of evidence for identification
of operative variable
at age 12 by teacher rating
Urban sample

Teacher Rating **high**

Variable	Task	0	1	2	3	5	N
RIVPE402	Plant Task	0.019	0.151	0.019	0.321	0.491	53
RIVHE402	House Task	0.057	0.132	0.019	0.283	0.509	53
RIVTE402	Toy Task	0.038	0.132	0.038	0.340	0.453	53

Teacher Rating **low**

Variable	Task	0	1	2	3	5	N
RIVPE402	Plant Task	0.035	0.158	0.000	0.263	0.544	57
RIVHE402	House Task	0.105	0.158	0.000	0.246	0.491	57
RIVTE402	Toy Task	0.105	0.105	0.000	0.228	0.561	57

Table 28
Use of evidence for identification
of operative variable
at age 12 by gender
Urban sample

Gender **male**

Variable	Task	0	1	2	3	5	N
RIVPE402	Plant Task	0.034	0.186	0.000	0.271	0.508	59
RIVHE402	House Task	0.102	0.102	0.017	0.271	0.508	59
RIVTE402	Toy Task	0.085	0.119	0.017	0.322	0.458	59

Continuation:
Table 28
Use of evidence for identification of operative variable at age 12 by gender
Urban sample

Gender		female					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.020	0.118	0.020	0.314	0.529	51
RIVHE402	House Task	0.059	0.196	0.000	0.255	0.490	51
RIVTE402	Toy Task	0.0590	0.118	0.020	0.235	0.569	51

Table 29
Use of evidence for identification of operative variable at age 12 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.019	0.173	0.000	0.288	0.519	52
RIVHE402	House Task	0.058	0.096	0.019	0.327	0.500	52
RIVTE402	Toy Task	0.038	0.096	0.019	0.308	0.538	52

SES		low					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.034	0.138	0.017	0.293	0.517	58
RIVHE402	House Task	0.103	0.190	0.000	0.207	0.500	58
RIVTE402	Toy Task	0.103	0.138	0.017	0.259	0.483	58

Table 30
Use of evidence for identification of operative variable at age 12 by social class in six categories
Urban sample

SES		high/high (SES 6)					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.000	0.308	0.000	0.154	0.538	13
RIVHE402	House Task	0.000	0.077	0.000	0.308	0.615	13
RIVTE402	Toy Task	0.000	0.154	0.000	0.231	0.615	13
SES		**high/low (SES 5)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.000	0.150	0.000	0.450	0.400	20
RIVHE402	House Task	0.000	0.100	0.050	0.400	0.450	20
RIVTE402	Toy Task	0.050	0.050	0.000	0.500	0.400	20
SES		**middle/high (SES 4)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.053	0.105	0.000	0.211	0.632	19
RIVHE402	House Task	0.158	0.105	0.000	0.263	0.474	19
RIVTE402	Toy Task	0.053	0.105	0.053	0.158	0.632	19
SES		**middle/low (SES 3)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.059	0.118	0.059	0.118	0.647	17
RIVHE402	House Task	0.118	0.059	0.000	0.118	0.706	17
RIVTE402	Toy Task	0.118	0.000	0.000	0.176	0.706	17

Continuation:

Table 30
Use of evidence for identification
of operative variable
at age 12 by social class in six categories
Urban sample

SES		low/high (SES 2)					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.000	0.077	0.000	0.346	0.577	26
RIVHE402	House Task	0.115	0.77	0.000	0.308	0.500	26
RIVTE402	Toy Task	0.115	0.154	0.038	0.231	0.462	26
SES		**low/low (SES 1)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE402	Plant Task	0.067	0.267	0.000	0.400	0.267	15
RIVHE402	House Task	0.067	0.533	0.000	0.133	0.267	15
RIVTE402	Toy Task	0.067	0.267	0.000	0.400	0.267	15

Table 31
Use of evidence for identification
of non-operative variable
at age 12
Urban sample

Variable	Task	0	1	2	3	5	N
RIVPE403	Plant Task	0.227	0.327	0.045	0.036	0.364	110
RIVHE403	House Task	0.227	0.327	0.027	0.082	0.336	110
RIVTE403	Toy Task	0.127	0.391	0.036	0.064	0.382	110

Table 32
Use of Evidence for Identification
of non-operative Variable
at age 12 by teacher rating
Urban sample
Teacher Rating high

Variable	Task	0	1	2	3	5	N
RIVPE403	Plant Task	0.189	0.377	0.057	0.057	0.321	53
RIVHE403	House Task	0.189	0.302	0.019	0.170	0.321	53
RIVTE403	Toy Task	0.132	0.415	0.038	0.132	0.283	53

Continuation:
Table 32
Use of Evidence for Identification
of non-operative Variable
at age 12 by teacher rating
Urban sample

Teacher Rating		**low**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.263	0.281	0.035	0.018	0.404	57
RIVHE403	House Task	0.263	0.351	0.035	0.000	0.351	57
RIVTE403	Toy Task	0.123	0.368	0.035	0.000	0.474	57

Table 33
Use of evidence for identification
of non-operative variable
at age 12 by gender
Urban sample

Gender		**male**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.220	0.305	0.034	0.051	0.390	59
RIVHE403	House Task	0.186	0.271	0.000	0.136	0.407	59
RIVTE403	Toy Task	0.119	0.322	0.034	0.085	0.441	59
Gender		**female**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.235	0.353	0.059	0.020	0.333	51
RIVHE403	House Task	0.275	0.392	0.059	0.020	0.255	51
RIVTE403	Toy Task	0.137	0.471	0.039	0.039	0.314	51

Table 34
Use of evidence for identification
of non-operative variable
at age 12 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.231	0.308	0.038	0.038	0.385	52
RIVHE403	House Task	0.154	0.385	0.058	0.096	0.308	52
RIVTE403	Toy Task	0.115	0.308	0.058	0.077	0.442	52
SES		**low**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.224	0.345	0.052	0.034	0.345	58
RIVHE403	House Task	0.293	0.276	0.000	0.069	0.362	58
RIVTE403	Toy Task	0.138	0.466	0.017	0.052	0.328	58

Table 35
Use of evidence for identification
of non-operative variable
at age 12 by social class in six categories
Urban sample

SES		high/high (SES 6)					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.077	0.308	0.000	0.077	0.538	13
RIVHE403	House Task	0.154	0.538	0.000	0.154	0.154	13
RIVTE403	Toy Task	0.077	0.385	0.000	0.154	0.385	13
SES		**high/low (SES 5)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.150	0.500	0.000	0.050	0.300	20
RIVHE403	House Task	0.050	0.450	0.000	0.150	0.350	20
RIVTE403	Toy Task	0.100	0.350	0.000	0.100	0.450	20

Continuation:
Table 35
Use of evidence for identification
of non-operative variable
at age 12 by social class in six categories
Urban sample

SES		**middle/high (SES 4)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.421	0.105	0.105	0.000	0.368	19
RIVHE403	House Task	0.263	0.211	0.158	0.000	0.368	19
RIVTE403	Toy Task	0.158	0.211	0.158	0.000	474	19
SES		**middle/low (SES 3)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.118	0.294	0.000	0.059	0.529	17
RIVHE403	House Task	0.118	0.353	0.000	0.059	0.471	17
RIVTE403	Toy Task	0.118	0.412	0.000	0.000	0.471	17
SES		**low/high (SES 2)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.308	0.231	0.077	0.038	0.346	26
RIVHE403	House Task	0.385	0.231	0.000	0.077	0.308	26
RIVTE403	Toy Task	0.077	0.462	0.038	0.077	0.346	26
SES		**low/low (SES 1)**					
Variable	**Task**	**0**	**1**	**2**	**3**	**5**	**N**
RIVPE403	Plant Task	0.200	0.600	0.067	0.000	0.133	15
RIVHE403	House Task	0.333	0.267	0.000	0.067	0.333	15
RIVTE403	Toy Task	0.267	0.533	0.000	0.067	0.133	15

Rural Sample

Table 36
Pattern Score for the isolation of variables task at age 12
Rural sample

Variable	Task	0	1	2	3	4	5	N
IVP400	Plant Task	0.274	0.081	0.032	0.323	0.032	0.258	62
IVH400	House Task	0.435	0.032	0.032	0.226	0.048	0.226	64
IVT400	Toy Task	0.258	0.129	0.048	0.258	0.016	0.290	64

Table 37
Pattern Score for the isolation of variables task at age 12 by gender
Rural sample
Gender male

Variable	Task	0	1	2	3	4	5	N
IVP400	Plant Task	0.235	0.059	0.059	0.382	0.000	0.265	34
IVH400	House Task	0.441	0.059	0.029	0.206	0.059	0.206	34
IVT400	Toy Task	0.294	0.118	0.029	0.265	0.000	0.294	34

Gender female

Variable	Task	0	1	2	3	4	5	N
IVP400	Plant Task	0.321	0.107	0.000	0.250	0.071	0.250	28
IVH400	House Task	0.429	0.000	0.036	0.250	0.036	0.250	28
IVT400	Toy Task	0.214	0.143	0.071	0.250	0.036	0.286	28

Table 38
Pattern Score for the isolation of variables task
at age 12 by region
Rural sample

Region		North						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP400	Plant Task	0.211	0.105	0.053	0.368	0.053	0.211	19
IVH400	House Task	0.263	0.053	0.105	0.263	0.053	0.263	19
IVT400	Toy Task	0.158	0.211	0.105	0.158	0.000	0.368	19
Region		**West**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP400	Plant Task	0.263	0.000	0.053	0.421	0.000	0.263	19
IVH400	House Task	0.421	0.053	0.000	0.316	0.053	0.158	19
IVT400	Toy Task	0.526	0.053	0.000	0.368	0.000	0.053	19
Region		**South**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP400	Plant Task	0.333	0.125	0.000	0.208	0.042	0.292	24
IVH400	House Task	0.583	0.000	0.000	0.125	0.042	0.250	24
IVT400	Toy Task	0.125	0.125	0.042	0.250	0.042	0.417	24

Table 39
Level score for the isolation of variable task
at age 12
Rural sample

Variable	Task	0	1	2	3	4	5	N
IVP401	Plant Task	0.274	0.032	0.194	0.210	0.097	0.194	62
IVH401	House Task	0.419	0.016	0.226	0.097	0.081	0.161	62
IVT401	Toy Task	0.258	0.097	0.274	0.048	0.081	0.242	62

Table 40
Level score for the isolation of variable task
at age 12 by gender
Rural sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP401	Plant Task	0.235	0.000	0.235	0.206	0.147	0.176	34
IVH401	House Task	0.412	0.029	0.235	0.088	0.118	0.118	34
IVT401	Toy Task	0.294	0.059	0.324	0.029	0.000	0.294	34

Gender		female						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP401	Plant Task	0.321	0.071	0.143	0.214	0.036	0.214	28
IVH401	House Task	0.429	0.000	0.214	0.107	0.036	0.214	28
IVT401	Toy Task	0.214	0.143	0.214	0.071	0.179	0.179	28

Table 41
Level score for the isolation of variable task
at age 12 by region
Rural sample

Region		North						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP401	Plant Task	0.211	0.053	0.158	0.316	0.105	0.158	19
IVH401	House Task	0.263	0.000	0.316	0.105	0.053	0.263	19
IVT401	Toy Task	0.158	0.158	0.211	0.053	0.158	0.263	19

Region		West						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP401	Plant Task	0.263	0.000	0.211	0.211	0.158	0.158	19
IVH401	House Task	0.421	0.053	0.263	0.105	0.105	0.053	19
IVT401	Toy Task	0.526	0.053	0.316	0.053	0.053	0.000	19

Continuation:

Table 41
Level score for the isolation of variable task
at age 12 by region
Rural sample

Region **South**

Variable	Task	0	1	2	3	4	5	N
IVP401	Plant Task	0.333	0.042	0.208	0.125	0.042	0.250	24
IVH401	House Task	0.542	0.000	0.125	0.083	0.083	0.167	24
IVT401	Toy Task	0.125	0.083	0.292	0.042	0.042	0.417	24

Table 42
Identification of operative variable
at age 12
Rural sample

Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP402	Plant Task	0.371	0.161	0.032	0.435	64
IVH402	House Task	0.500	0.274	0.032	0.194	62
IVT402	Toy Task	0.468	0.306	0.048	0.177	62

Table 43
Identification of operative variable
at age 12 by gender
Rural sample

Gender **male**

Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP402	Plant Task	0.324	0.176	0.029	0.471	34
IVH402	House Task	0.471	0.382	0.029	0.118	34
IVT402	Toy Task	0.441	0.353	0.088	0.118	34

Continuation
Table 43
Identification of operative variable
at age 12 by gender
Rural sample

Gender		female				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP402	Plant Task	0.429	0.143	0.036	0.393	28
IVH402	House Task	0.536	0.143	0.036	0.286	28
IVT402	Toy Task	0.500	0.250	0.000	0.250	28

Table 44
Identification of operative variable
at age 12 by region
Rural sample

Region		North				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP402	Plant Task	0.263	0.316	0.000	0.421	19
IVH402	House Task	0.316	0.316	0.000	0.368	19
IVT402	Toy Task	0.211	0.526	0.000	0.263	19
Region		**West**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP402	Plant Task	0.316	0.158	0.000	0.526	19
IVH402	House Task	0.526	0.316	0.000	0.158	19
IVT402	Toy Task	0.789	0.158	0.000	0.053	19
Region		**South**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP402	Plant Task	0.500	0.042	0.083	0.375	24
IVH402	House Task	0.625	0.208	0.083	0.083	24
IVT402	Toy Task	0.417	0.250	0.125	0.208	24

Table 45
Identification of non-operative variable
at age 12
Rural sample

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP403	Plant Task	0.581	0.113	0.097	0.210	62
IVH403	House Task	0.548	0.097	0.097	0.258	62
IVT403	Toy Task	0.419	0.065	0.161	0.355	62

Table 46
Identification of non-operative variable
at age 12 by gender
Rural sample

Gender **male**

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP403	Plant Task	0.588	0.118	0.088	0.206	34
IVH403	House Task	0.529	0.118	0.147	0.206	34
IVT403	Toy Task	0.471	0.088	0.088	0.353	34

Gender **female**

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP403	Plant Task	0.571	0.107	0.107	0.214	28
IVH403	House Task	0.571	0.071	0.036	0.321	28
IVT403	Toy Task	0.357	0.036	0.250	0.357	28

Table 47
Identification of non-operative variable
at age 12 by region
Rural sample

Region **North**

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP403	Plant Task	0.632	0.053	0.105	0.211	19
IVH403	House Task	0.526	0.000	0.053	0.421	19
IVT403	Toy Task	0.421	0.053	0.105	0.421	19

Continuation:
Table 47
Identification of non-operative variable
at age 12 by region
Rural sample

Region		West				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
IVP403	Plant Task	0.579	0.053	0.105	0.263	19
IVH403	House Task	0.526	0.053	0.263	0.158	19
IVT403	Toy Task	0.579	0.053	0.158	0.211	19
Region		**South**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
IVP403	Plant Task	0.542	0.208	0.083	0.167	24
IVH403	House Task	0.583	0.208	0.000	0.208	24
IVT403	Toy Task	0.292	0.083	0.208	0.417	24

Table 48
Identification of neutral variable
at age 12
Rural sample

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP404	Plant Task	0.242	0.145	0.161	0.419	0.032	62
IVH404	House Task	0.145	0.161	0.145	0.484	0.065	62
IVT404	Toy Task	0.177	0.306	0.194	0.226	0.097	62

Table 49
Identification of neutral variable
at age 12 by gender
Rural sample

Gender		male					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
IVP404	Plant Task	0.206	0.176	0.235	0.324	0.059	34
IVH404	House Task	0.176	0.176	0.176	0.412	0.059	34
IVT404	Toy Task	0.265	0.235	0.147	0.235	0.118	34

Gender		female					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP404	Plant Task	0.286	0.107	0.071	0.536	0.000	28
IVH404	House Task	0.107	0.143	0.107	0.571	0.071	28
IVT404	Toy Task	0.071	0.393	0.250	0.214	0.071	28

Table 50
Identification of neutral variable
at age 12 by region
Rural sample

Region		North					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP404	Plant Task	0.211	0.105	0.053	0.632	0.000	19
IVH404	House Task	0.053	0.053	0.158	0.579	0.158	19
IVT404	Toy Task	0.105	0.421	0.053	0.263	0.158	19
Region		**West**					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP404	Plant Task	0.211	0.211	0.316	0.263	0.000	19
IVH404	House Task	0.158	0.211	0.211	0.421	0.000	19
IVT404	Toy Task	0.211	0.263	0.263	0.263	0.000	19
Region		**South**					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP404	Plant Task	0.292	0.125	0.125	0.375	0.083	24
IVH404	House Task	0.208	0.208	0.083	0.458	0.042	24
IVT404	Toy Task	0.208	0.250	0.250	0.167	0.125	24

Table 51
Impression
at age 12
Rural sample

Variable	Task	reflecting	oscillating	N
IVP405	Plant Task	0.295	0.705	61
IVH405	House Task	0.210	0.790	62
IVT405	Toy Task	0.887	0.113	62

Table 52
Impression
at age 12 by gender
Rural sample

Gender		male			female		
Variable	Task	reflecting	oscillating	N	reflecting	oscillating	N
IVP405	Plant Task	0.273	0.727	33	0.321	0.679	28
IVH405	House Task	0.147	0.853	34	0.286	0.714	28
IVT405	Toy Task	0.118	0.882	34	0.107	0.893	28

Table 53
Impression
at age 12 by region
Rural sample

Region		North		
Variable	Task	reflecting	oscillating	N
IVP405	Plant Task	0.222	0.779	18
IVH405	House Task	0.211	0.789	19
IVT405	Toy Task	0.105	0.895	19

Region		West			South		
Variable	Task	reflecting	oscillating	N	reflecting	oscillating	N
IVP405	Plant Task	0.263	0.737	19	0.375	0.625	24
IVH405	House Task	0.263	0.737	19	0.167	0.833	24
IVT405	Toy Task	0.105	0.895	19	0.125	0.875	24

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Urban Sample

Table 54
Pattern Score for the isolation of variables task
at age 15
Urban sample

Variable	Task	0	1	2	3	4	5	N
IVP500	Plant Task	0.318	0.047	0.019	0.215	0.056	0.346	107
IVH500	House Task	0.327	0.075	0.000	0.159	0.047	0.393	107
IVT500	Toy Task	0.215	0.037	0.037	0.140	0.056	0.514	107

Table 55
Pattern Score for the isolation of variables task
at age 15 by teacher rating
Urban sample

Teacher Rating		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.264	0.038	0.019	0.226	0.038	0.415	53
IVH500	House Task	0.358	0.038	0.000	0.170	0.019	0.415	53
IVT500	Toy Task	0.132	0.038	0.019	0.113	0.094	0.604	53
Teacher Rating		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.370	0.056	0.019	0.204	0.074	0.278	54
IVH500	House Task	0.296	0.111	0.000	0.148	0.074	0.370	54
IVT500	Toy Task	0.296	0.037	0.056	0.167	0.019	0.426	54

Table 56
Pattern Score for the isolation of variables task
at age 15 by gender
Urban sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.298	0.053	0.000	0.211	0.035	0.404	57
IVH500	House Task	0.333	0.035	0.000	0.228	0.035	0.368	57
IVT500	Toy Task	0.211	0.035	0.053	0.158	0.070	0.474	57
Gender		**female**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.340	0.040	0.040	0.220	0.080	0.280	50
IVH500	House Task	0.320	0.120	0.000	0.080	0.060	0.420	50
IVT500	Toy Task	0.220	0.040	0.020	0.120	0.040	0.560	50

Table 57
Pattern Score for the isolation of variables task
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.294	0.020	0.020	0.235	0.020	0.412	51
IVH500	House Task	0.412	0.039	0.000	0.157	0.020	0.373	51
IVT500	Toy Task	0.235	0.020	0.000	0.157	0.000	0.588	51
SES		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.339	0.0712	0.018	0.196	0.089	0.286	56
IVH500	House Task	0.250	0.107	0.000	0.161	0.071	0.411	56
IVT500	Toy Task	0.196	0.054	0.071	0.125	0.107	0.446	56

Table 58
Pattern Score for the isolation of variables task
at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.308	0.077	0.000	0.077	0.000	0.538	13
IVH500	House Task	0.385	0.077	0.000	0.077	0.000	0.462	13
IVT500	Toy Task	0.154	0.000	0.000	0.154	0.000	0.692	13
SES		**high/low (SES 5)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.300	0.000	0.000	0.250	0.050	0.400	20
IVH500	House Task	0.350	0.050	0.000	0.150	0.050	0.400	20
IVT500	Toy Task	0.200	0.000	0.000	0.150	0.000	0.650	20
SES		**middle/high (SES 4)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.278	0.000	0.056	0.333	0.000	0.333	18
IVH500	House Task	0.500	0.000	0.000	0.222	0.000	0.278	18
IVT500	Toy Task	0.333	0.056	0.000	0.167	0.000	0.444	18
SES		**middle/low (SES 3)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.353	0.059	0.059	0.176	0.118	0.235	17
IVH500	House Task	0.412	0.176	0.000	0.118	0.059	0.235	17
IVT500	Toy Task	0.059	0.059	0.118	0.176	0.059	0.529	17
SES		**low/high (SES 2)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.240	0.080	0.000	0.200	0.120	0.360	25
IVH500	House Task	0.160	0.040	0.000	0.280	0.120	0.400	25
IVT500	Toy Task	0.240	0.080	0.040	0.120	0.160	0.360	25

Continuation:
Table 58
Pattern Score for the isolation of variables task at age 15 by social class in six categories
Urban sample

SES		low/low (SES 1)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.500	0.071	0.000	0.214	0.000	0.214	14
IVH500	House Task	0.214	0.143	0.000	0.000	0.000	0.643	14
IVT500	Toy Task	0.286	0.000	0.071	0.071	0.071	0.500	14

Table 59
Level score for the isolation of variable task at age 15
Urban sample

Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.252	0.112	0.131	0.159	0.028	0.318	107
IVH501	House Task	0.280	0.103	0.159	0.065	0.075	0.318	107
IVT501	Toy Task	0.187	0.056	0.159	0.075	0.140	0.383	107

Table 60
Level score for the isolation of variable task at age 15 by teacher rating
Urban sample

Teacher Rating		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.189	0.113	0.094	0.189	0.057	0.358	53
IVH501	House Task	0.302	0.075	0.151	0.057	0.094	0.321	53
IVT501	Toy Task	0.132	0.038	0.151	0.075	0.226	0.377	53
Teacher Rating		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.315	0.111	0.167	0.130	0.000	0.278	54
IVH501	House Task	0.259	0.130	0.167	0.074	0.056	0.315	54
IVT501	Toy Task	0.241	0.074	0.167	0.074	0.056	0.389	54

Table 61
Level score for the isolation of variable task
at age 15 by gender
Urban sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.246	0.105	0.105	0.140	0.035	0.368	57
IVH501	House Task	0.316	0.035	0.211	0.070	0.053	0.316	57
IVT501	Toy Task	0.193	0.053	0.211	0.053	0.175	0.316	57
Gender		**female**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.260	0.120	0.160	0.180	0.020	0.260	50
IVH501	House Task	0.240	0.180	0.100	0.060	0.100	0.320	50
IVT501	Toy Task	0.180	0.060	0.100	0.100	0.100	0.460	50

Table 62
Level score for the isolation of variable task
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.196	0.118	0.157	0.118	0.039	0.373	51
IVH501	House Task	0.353	0.078	0.157	0.039	0.059	0.314	51
IVT501	Toy Task	0.216	0.039	0.118	0.039	0.196	0.392	51
SES		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.304	0.107	0.107	0.196	0.018	0.268	56
IVH501	House Task	0.214	0.125	0.161	0.089	0.089	0.321	56
IVT501	Toy Task	0.161	0.071	0.196	0.107	0.089	0.375	56

Table 63
Level score for the isolation of variable task at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.231	0.154	0.077	0.000	0.077	0.462	13
IVH501	House Task	0.385	0.000	0.154	0.000	0.077	0.385	13
IVT501	Toy Task	0.154	0.000	0.154	0.000	0.308	0.385	13
SES		**high/low (SES 5)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.150	0.150	0.100	0.200	0.000	0.400	20
IVH501	House Task	0.300	0.100	0.150	0.050	0.100	0.300	20
IVT501	Toy Task	0.150	0.050	0.150	0.000	0.250	0.400	20
SES		**middle/high (SES 4)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.222	0.056	0.278	0.111	0.056	0.278	18
IVH501	House Task	0.389	0.111	0.167	0.056	0.000	0.278	18
IVT501	Toy Task	0.333	0.056	0.056	0.111	0.056	0.389	18
SES		**middle/low (SES 3)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.294	0.118	0.118	0.235	0.000	0.235	17
IVH501	House Task	0.353	0.176	0.118	0.118	0.000	0.235	17
IVT501	Toy Task	0.059	0.000	0.353	0.059	0.176	0.353	17
SES		**low/high (SES 2)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.240	0.080	0.040	0.280	0.000	0.360	25
IVH501	House Task	0.160	0.040	0.280	0.120	0.040	0.360	25
IVT501	Toy Task	0.200	0.120	0.080	0.200	0.400	0.360	25

Continuation:
Table 63
Level score for the isolation of variable task at age 15 by social class in six categories
Urban sample

SES		low/low (SES 1)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.429	0.143	0.214	0.000	0.071	0.143	14
IVH501	House Task	0.143	0.214	0.000	0.000	0.286	0.357	14
IVT501	Toy Task	0.214	0.071	0.214	0.000	0.071	0.429	14

Table 64
Identification of operative variable at age 15
Urban sample

Variable	Task	no identification	positive operative Variable	negative operative Variablr	pos. & neg. operative Variable	N
IVP502	Plant Task	0.393	0.187	0.056	0.364	107
IVH502	House Task	0.411	0.280	0.065	0.243	107
IVT502	Toy Task	0.290	0.364	0.075	0.271	107

Table 65
Identification of operative variable at age 15 by teacher rating
Urban sample

Teacher Rating		high				
Variable	**Task**	no identification	positive operative Variable	negative operative Variablr	pos. & neg. operative Variable	N
IVP502	Plant Task	0.302	0.226	0.075	0.396	53
IVH502	House Task	0.415	0.264	0.094	0.226	53
IVT502	Toy Task	0.170	0.547	0.094	0.189	53
Teacher Rating		**low**				
Variable	**Task**	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.481	0.148	0.037	0.333	54
IVH502	House Task	0.407	0.296	0.037	0.259	54
IVT502	Toy Task	0.407	0.185	0.056	0.352	54

Table 66
Identification of operative variable
at age 15 by gender
Urban sample

Gender		male				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP502	Plant Task	0.368	0.175	0.035	0.421	57
IVH502	House Task	0.421	0.263	0.070	0.246	57
IVT502	Toy Task	0.316	0.333	0.070	0.281	57
Gender		**female**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP502	Plant Task	0.420	0.200	0.080	0.300	50
IVH502	House Task	0.400	0.300	0.060	0.240	50
IVT502	Toy Task	0.260	0.400	0.080	0.260	50

Table 67
Identification of operative variable
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP502	Plant Task	0.373	0.196	0.078	0.353	51
IVH502	House Task	0.490	0.235	0.078	0.196	51
IVT502	Toy Task	0.294	0.333	0.098	0.275	51
SES		**low**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP502	Plant Task	0.411	0.179	0.036	0.375	56
IVH502	House Task	0.339	0.321	0.054	0.286	56
IVT502	Toy Task	0.286	0.393	0.054	0.268	56

Table 68
Identification of operative variable
at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.462	0.154	0.077	0.308	13
IVH502	House Task	0.385	0.154	0.154	0.308	13
IVT502	Toy Task	0.308	0.385	0.077	0.231	13
SES		**high/low (SES 5)**				
Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IHP502	Plant Task	0.400	0.100	0.050	0.450	20
IVH502	House Task	0.500	0.300	0.000	0.200	20
IVT502	Toy Task	0.250	0.400	0.050	0.300	20
SES		**middle/high (SES 4)**				
Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.278	0.333	0.111	0.278	18
IVH502	House Task	0.556	0.222	0.111	0.111	18
IVT502	Toy Task	0.333	0.222	0.167	0.278	18
SES		**middle/low (SES 3)**				
Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.412	0.118	0.000	0.471	17
IVH502	House Task	0.529	0.176	0.059	0.235	17
IVT502	Toy Task	0.176	0.294	0.176	0.353	17
SES		**low/high (SES 2)**				
Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.320	0.160	0.080	0.440	25
IVH502	House Task	0.280	0.400	0.040	0.280	25
IVT502	Toy Task	0.320	0.440	0.000	0.240	25

Continuation:
Table 68
Identification of operative variable
at age 15 by social class in six categories
Urban sample

SES		low/low (SES 1)				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP502	Plant Task	0.571	0.286	0.000	0.143	14
IVH502	House Task	0.214	0.357	0.071	0.357	14
IVT502	Toy Task	0.357	0.429	0.000	0.214	14

Table 69
Identification of non-operative variable
at age 15
Urban sample

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by +/- value	N
IVP503	Plant Task	0.598	0.047	0.000	0.355	107
IVH503	House Task	0.505	0.084	0.037	0.374	107
IVT503	Toy Task	0.355	0.065	0.037	0.542	107

Table 70
Identification of non-operative variable
at age 15 by teacher rating
Urban sample

Teacher Rating		high				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.547	0.038	0.000	0.415	53
IVH503	House Task	0.509	0.075	0.038	0.377	53
IVT503	Toy Task	0.283	0.094	0.038	0.585	53
Teacher Rating		**low**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.648	0.056	0.000	0.296	54
IVH503	House Task	0.500	0.093	0.037	0.370	54
IVT503	Toy Task	0.426	0.037	0.037	0.500	54

Table 71
Identification of non-operative variable
at age 15 by gender
Urban sample

Gender		male				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.561	0.035	0.000	0.404	57
IVH503	House Task	0.509	0.105	0.053	0.333	57
IVT503	Toy Task	0.368	0.070	0.053	0.509	57
Gender		**female**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.640	0.060	0.000	0.300	50
IVH503	House Task	0.500	0.060	0.020	0.420	50
IVT503	Toy Task	0.340	0.060	0.020	0.580	50

Table 72
Identification of non-operative variable
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.529	0.039	0.000	0.431	51
IVH503	House Task	0.529	0.059	0.000	0.412	51
IVT503	Toy Task	0.333	0.059	0.020	0.588	51
SES		**low**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.661	0.054	0.000	0.286	56
IVH503	House Task	0.482	0.107	0.071	0.339	56
IVT503	Toy Task	0.375	0.071	0.054	0.500	56

Table 73
Identification of non-operative variable
at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.385	0.077	0.000	0.538	13
IVH503	House Task	0.538	0.077	0.000	0.385	13
IVT503	Toy Task	0.154	0.077	0.077	0.692	13
SES		**high/low (SES 5)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.500	0.000	0.000	0.500	20
IVH503	House Task	0.400	0.050	0.000	0.550	20
IVT503	Toy Task	0.250	0.100	0.000	0.650	20
SES		**middle/high (SES 4)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.667	0.056	0.000	0.278	18
IVH503	House Task	0.667	0.056	0.000	0.278	18
IVT503	Toy Task	0.556	0.000	0.000	0.444	18
SES		**middle/low (SES 3)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.706	0.000	0.000	0.294	17
IVH503	House Task	0.647	0.176	0.059	0.118	17
IVT503	Toy Task	0.294	0.176	0.000	0.529	17
SES		**low/high (SES 2)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.600	0.080	0.000	0.320	25
IVH503	House Task	0.440	0.040	0.080	0.440	25
IVT503	Toy Task	0.440	0.040	0.080	0.440	25

Continuation:

Table 73
Identification of non-operative variable
at age 15 by social class in six categories
Urban sample

SES		low/low (SES 1)				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP503	Plant Task	0.714	0.071	0.000	0.214	14
IVH503	House Task	0.357	0.143	0.071	0.429	14
IVT503	Toy Task	0.357	0.000	0.071	0.571	14

Table 74
Identification of neutral variable
at age 15
Urban sample

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.009	0.121	0.065	0.383	0.421	107
IVH504	House Task	0.009	0.140	0.047	0.430	0.374	107
IVT504	Toy Task	0.009	0.131	0.168	0.224	0.467	107

Table 75
Identification of neutral variable
at age 15 by teacher rating
Urban sample

Teacher Rating		high					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
IVP504	Plant Task	0.000	0.113	0.038	0.396	0.453	53
IVH504	House Task	0.000	0.075	0.057	0.453	0.415	53
IVT504	Toy Task	0.000	0.113	0.132	0.226	0.528	53
Teacher Rating		**low**					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
IVP504	Plant Task	0.019	0.130	0.093	0.370	0.389	54
IVH504	House Task	0.019	0.204	0.037	0.407	0.333	54
IVT504	Toy Task	0.019	0.148	0.204	0.222	0.407	54

Table 76
Identification of neutral variable
at age 15 by gender
Urban sample

Gender		male					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.018	0.158	0.035	0.281	0.509	57
IVH504	House Task	0.000	0.175	0.018	0.421	0.366	57
IVT504	Toy Task	0.018	0.158	0.123	0.281	0.421	57
Gender		female					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.000	0.080	0.100	0.500	0.320	50
IVH504	House Task	0.020	0.100	0.080	0.440	0.360	50
IVT504	Toy Task	0.000	0.100	0.220	0.160	0.520	50

Table 77
Identification of neutral variable
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.000	0.078	0.059	0.392	0.471	51
IVH504	House Task	0.000	0.059	0.078	0.529	0.333	51
IVT504	Toy Task	0.000	0.078	0.196	0.294	0.431	51
SES		low					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.018	0.161	0.071	0.375	0.375	56
IVH504	House Task	0.018	0.214	0.018	0.339	0.411	56
IVT504	Toy Task	0.018	0.179	0.143	0.161	0.500	56

Table 78
Identification of neutral variable
at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.000	0.000	0.077	0.231	0.692	13
IVH504	House Task	0.000	0.077	0.000	0.462	0.462	13
IVT504	Toy Task	0.000	0.154	0.077	0.231	0.538	13
SES		high/low (SES 5)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.000	0.159	0.000	0.450	0.400	20
IVH504	House Task	0.000	0.050	0.150	0.550	0.250	20
IVT504	Toy Task	0.000	0.050	0.250	0.300	0.400	20
SES		middle/high (SES 4)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.000	0.056	0.111	0.444	0.389	18
IVH504	House Task	0.000	0.056	0.056	0.556	0.333	20
IVT504	Toy Task	0.000	0.056	0.222	0.333	0.389	18
SES		middle/low (SES 3)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.000	0.176	0.059	0.647	0.118	17
IVH504	House Task	0.000	0.235	0.059	0.412	0.294	17
IVT504	Toy Task	0.000	0.176	0.118	0.176	0.529	17
SES		low/high (SES 2)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.040	0.240	0.080	0.120	0.520	25
IVH504	House Task	0.000	0.280	0.000	0.280	0.440	25
IVT504	Toy Task	0.040	0.200	0.200	0.160	0.400	25

Continuation:
Table 78
Identification of neutral variable
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES **low/low (SES 1)**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.000	0.000	0.071	0.500	0.429	14
IVH504	House Task	0.071	0.071	0.000	0.357	0.500	14
IVT504	Toy Task	0.000	0.143	0.071	0.143	0.643	14

Table 79
Use of evidence for identification
of operative variable
at age 15
Urban sample

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.369	0.252	0.029	0.350	103
IVHE502	House Task	0.461	0.284	0.000	0.255	102
IVTE502	Toy Task	0.353	0.363	0.020	0.265	102

Table 80
Use of evidence for identification
of operative variable
at age 15 by teacher rating
Urban sample

Teacher Rating **high**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.280	0.300	0.040	0.380	50
IVHE502	House Task	0.429	0.327	0.000	0.245	49
IVTE502	Toy Task	0.265	0.531	0.020	0.184	49

Teacher Rating **low**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.453	0.208	0.019	0.321	53
IVHE502	House Task	0.491	0.245	0.000	0.264	53
IVTE502	Toy Task	0.434	0.208	0.019	0.340	53

Table 81
Use of evidence for identification
of operative variable
at age 15 by gender
Urban sample

Gender		male				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.345	0.218	0.036	0.400	55
IVHE502	House Task	0.444	0.296	0.000	0.259	54
IVTE502	Toy Task	0.426	0.333	0.019	0.222	54
Gender		**female**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.396	0.292	0.021	0.292	48
IVHE502	House Task	0.479	0.271	0.000	0.250	48
IVTE502	Toy Task	0.271	0.396	0.021	0.313	48

Table 82
Use of evidence for identification
of operative variable
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.333	0.271	0.042	0.354	48
IVHE502	House Task	0.521	0.250	0.000	0.229	48
IVTE502	Toy Task	0.354	0.396	0.000	0.250	48
SES		**low**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.400	0.236	0.018	0.345	55
IVHE502	House Task	0.407	0.315	0.000	0.278	54
IVTE502	Toy Task	0.352	0.333	0.037	0.278	54

Table 83
Use of evidence for identification of operative variable at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	**Task**	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.417	0.167	0.083	0.333	12
IVHE502	House Task	0.417	0.333	0.000	0.250	12
IVTE502	Toy Task	0.250	0.583	0.000	0.167	12
SES		**high/low (SES 5)**				
Variable	**Task**	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.333	0.167	0.000	0.500	18
IVHE502	House Task	0.556	0.222	0.000	0.222	18
IVTE502	Toy Task	0.389	0.333	0.000	0.278	18
SES		**middle/high (SES 4)**				
Variable	**Task**	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.278	0.444	0.056	0.222	18
IVHE502	House Task	0.556	0.222	0.000	0.222	18
IVTE502	Toy Task	0.389	0.333	0.000	0.278	18
SES		**middle/low (SES 3)**				
Variable	**Task**	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.438	0.188	0.063	0.313	16
IVHE502	House Task	0.625	0.188	0.000	0.188	16
IVTE502	Toy Task	0.313	0.375	0.125	0.188	16
SES		**low/high (SES 2)**				
Variable	**Task**	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.320	0.200	0.000	0.480	25
IVHE502	House Task	0.333	0.375	0.000	0.292	24
IVTE502	Toy Task	0.375	0.250	0.000	0.375	24

Continuation:

Table 83
Use of evidence for identification
of operative variable
at age 15 by social class in six categories
Urban sample

SES **low/low (SES 1)**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.500	0.357	0.000	0.143	14
IVHE502	House Task	0.286	0.357	0.000	0.357	14
IVTE502	Toy Task	0.357	0.429	0.000	0.214	14

Table 84
Use of evidence for identification
of non-operative variable
at age 15
Urban sample

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE503	Plant Task	0.600	0.276	0.048	0.076	105
IVHE503	House Task	0.505	0.390	0.067	0.038	105
IVTE503	Toy Task	0.410	0.505	0.038	0.048	105

Table 85
Use of evidence for identification
of non-operative variable
at age 15 by teacher rating
Urban sample

Teacher Rating **high**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE503	Plant Task	0.588	0.255	0.078	0.078	51
IVHE503	House Task	0.510	0.392	0.059	0.039	51
IVTE503	Toy Task	0.373	0.529	0.059	0.039	51

Continuation:

Table 85
Use of evidence for identification
of non-operative variable
at age 15 by teacher rating
Urban sample

Teacher Rating **low**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE503	Plant Task	0.611	0.296	0.019	0.074	54
IVHE503	House Task	0.500	0.389	0.074	0.037	54
IVTE503	Toy Task	0.444	0.481	0.019	0.056	54

Table 86
Use of evidence for identification
of non-operative variable
at age 15 by gender
Urban sample

Gender **male**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE503	Plant Task	0.527	0.309	0.036	0.127	55
IVHE503	House Task	0.509	0.400	0.018	0.073	55
IVTE503	Toy Task	0.400	0.527	0.018	0.055	55

Gender **female**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE503	Plant Task	0.680	0.240	0.060	0.020	50
IVHE503	House Task	0.500	0.380	0.120	0.000	50
IVTE503	Toy Task	0.420	0.480	0.060	0.040	50

Table 87
Use of evidence for identification
of non-operative variable
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.540	0.340	0.080	0.040	50
IVHE503	House Task	0.520	0.340	0.080	0.060	50
IVTE503	Toy Task	0.380	0.520	0.040	0.060	50
SES		**low**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.655	0.218	0.018	0.109	55
IVHE503	House Task	0.491	0.436	0.055	0.018	55
IVTE503	Toy Task	0.436	0.491	0.036	0.036	55

Table 88
Use of evidence for identification
of non-operative variable
at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.385	0.462	0.077	0.077	13
IVHE503	House Task	0.538	0.308	0.000	0.154	13
IVTE503	Toy Task	0.231	0.692	0.000	0.077	13
SES		**high/low (SES 5)**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.526	0.316	0.105	0.053	19
IVHE503	House Task	0.368	0.474	0.105	0.053	19
IVTE503	Toy Task	0.316	0.526	0.105	0.053	19

Continuation:

Table 88
Use of evidence for identification
of non-operative variable
at age 15 by social class in six categories
Urban sample

SES		middle/high (SES 4)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.667	0.278	0.056	0.000	18
IVHE503	House Task	0.667	0.222	0.111	0.000	18
IVTE503	Toy Task	0.556	0.389	0.000	0.056	18
SES		**middle/low (SES 3)**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.688	0.063	0.063	0.188	16
IVHE503	House Task	0.688	0.188	0.125	0.000	16
IVTE503	Toy Task	0.313	0.500	0.125	0.063	16
SES		**low/high (SES 2)**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.600	0.320	0.000	0.080	25
IVHE503	House Task	0.440	0.520	0.000	0.040	25
IVTE503	Toy Task	0.480	0.480	0.000	0.040	25
SES		**low/low (SES 1)**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.714	0.214	0.000	0.071	14
IVHE503	House Task	0.357	0.571	0.071	0.000	14
IVTE503	Toy Task	0.500	0.500	0.000	0.000	14

Table 89
Use of evidence for identification of non-operative variable at age 15
Urban sample

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE504	Plant Task	0.549	0.255	0.049	0.147	102
IVHE504	House Task	0.539	0.225	0.029	0.206	102
IVTE504	Toy Task	0.510	0.225	0.020	0.245	102

Table 90
Use of evidence for identification of non-operative variable at age 15 by teacher rating
Urban sample

Teacher Rating high

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE504	Plant Task	0.449	0.265	0.061	0.224	49
IVHE504	House Task	0.551	0.184	0.020	0.245	49
IVTE504	Toy Task	0.449	0.245	0.041	0.265	49

Teacher Rating low

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE504	Plant Task	0.642	0.245	0.038	0.075	53
IVHE504	House Task	0.528	0.264	0.038	0.170	53
IVTE504	Toy Task	0.566	0.208	0.000	0.226	53

Table 91
Use of evidence for identification of non-operative variable at age 15 by gender
Urban sample

Gender male

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE504	Plant Task	0.500	0.222	0.056	0.222	54
IVHE504	House Task	0.556	0.222	0.037	0.185	54
IVTE504	Toy Task	0.500	0.204	0.019	0.278	54

Continuation:

Table 91
Use of evidence for identification
of non-operative variable
at age 15 by gender
Urban sample

Gender		female				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.604	0.292	0.042	0.063	48
IVHE504	House Task	0.521	0.229	0.021	0.229	48
IVTE504	Toy Task	0.521	0.250	0.021	0.208	48

Table 92
Use of evidence for identification
of non-operative variable
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.458	0.271	0.042	0.229	48
IVHE504	House Task	0.625	0.208	0.042	0.125	48
IVTE504	Toy Task	0.521	0.229	0.000	0.250	48
SES		**low**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.630	0.241	0.056	0.074	54
IVHE504	House Task	0.463	0.241	0.019	0.278	54
IVTE504	Toy Task	0.500	0.222	0.037	0.241	54

Table 93
Use of evidence for identification
of non-operative variable
at age 15 by social class in six categories
Urban sample

SES	high/high (SES 6)					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.250	0.250	0.167	0.333	12
IVHE504	House Task	0.500	0.250	0.000	0.250	12
IVTE504	Toy Task	0.333	0.333	0.000	0.333	12

SES	high/low (SES 5)					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.556	0.222	0.000	0.222	18
IVHE504	House Task	0.667	0.167	0.056	0.111	18
IVTE504	Toy Task	0.611	0.167	0.000	0.222	18

SES	middle/high (SES 4)					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.500	0.222	0.000	0.222	18
IVHE504	House Task	0.667	0.222	0.056	0.056	18
IVTE504	Toy Task	0.556	0.222	0.000	0.222	18

SES	middle/low (SES 3)					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.500	0.333	0.000	0.167	18
IVHE504	House Task	0.688	0.125	0.000	0.188	16
IVTE504	Toy Task	0.625	0.188	0.063	0.125	16

Continuation:

Table 93
Use of evidence for identification
of non-operative variable
at age 15 by social class in six categories
Urban sample

SES		low/high (SES 2)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.542	0.250	0.083	0.125	24
IVHE504	House Task	0.333	0.333	0.042	0.292	24
IVTE504	Toy Task	0.500	0.208	0.042	0.250	24
SES		**low/low (SES 1)**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.571	0.357	0.000	0.071	14
IVHE504	House Task	0.429	0.214	0.000	0.357	14
IVTE504	Toy Task	0.357	0.286	0.000	0.357	14

Table 94
Impression
at age 15
Urban sample

Variable	Task	oscillating	reflecting	certain	N
IVP505	Plant Task	0.190	0.181	0.629	105
IVH505	House Task	0.208	0.189	0.604	106
IVT500	Toy Task	0.235	0.176	0.588	102

Table 95
Impression
at age 15 by teacher rating
Urban sample

Teacher Rating		high			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.115	0.192	0.692	52
IVH505	House Task	0.113	0.245	0.642	53
IVT500	Toy Task	0.176	0.176	0.647	51

Continuation:

Table 95
Impression
at age 15 by teacher rating
Urban sample

Teacher Rating		low			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.264	0.170	0.566	53
IVH505	House Task	0.302	0.132	0.566	53
IVT500	Toy Task	0.294	0.176	0.529	51

Table 96
Impression
at age 15 by gender
Urban sample

Gender		male			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.175	0.158	0.667	57
IVH505	House Task	0.211	0.158	0.632	57
IVT505	Toy Task	0.200	0.182	0.618	55
Gender		**female**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.208	0.208	0.583	48
IVH505	House Task	0.204	0.224	0.571	49
IVT505	Toy Task	0.277	0.170	0.553	47

Table 97
Impression
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.137	0.137	0.725	51
IVH505	House Task	0.176	0.196	0.627	51
IVT505	Toy Task	0.224	0.163	0.612	49

Continuation:

Table 97
Impression
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		low			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.241	0.222	0.537	54
IVH505	House Task	0.236	0.182	0.582	55
IVT500	Toy Task	0.245	0.189	0.566	53

Table 98
Impression
at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.231	0.077	0.692	13
IVH505	House Task	0.231	0.154	0.615	13
IVT500	Toy Task	0.308	0.154	0.538	13
SES		high/low (SES 5)			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.150	0.150	0.700	20
IVH505	House Task	0.150	0.250	0.600	20
IVT500	Toy Task	0.263	0.211	0.526	19
SES		middle/high (SES 4)			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.056	0.167	0.778	18
IVH505	House Task	0.167	0.167	0.667	18
IVT500	Toy Task	0.118	0.118	0.765	17

Continuation:

Table 98
Impression
at age 15 by social class in six categories
Urban sample

SES		middle/low (SES 3)			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.235	0.235	0.529	17
IVH505	House Task	0.294	0.118	0.588	17
IVT500	Toy Task	0.353	0.118	0.529	17
SES		**low/high (SES 2)**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.208	0.208	0.583	24
IVH505	House Task	0.200	0.160	0.640	25
IVT500	Toy Task	0.174	0.217	0.609	23
SES		**low/low (SES 1)**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.308	0.231	0.462	13
IVH505	House Task	0.231	0.308	0.462	13
IVT500	Toy Task	0.231	0.231	0.538	13

Table 99
Recognition
at age 15
Urban sample

Variable	Task	yes	no	N
IVMEM5	Task Recognition	0.255	0.745	102

Table 100
Recognition
at age 15 by teacher rating
Urban sample

Teacher Rating	high			
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.224	0.776	49
Teacher Rating	**low**			
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.283	0.717	53

Table 101
Recognition
at age 15 by gender
Urban sample

Gender	male			
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.189	0.811	53
Gender	**female**			
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.327	0.673	49

Table 102
Recognition
at age 15 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES	high			
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.229	0.771	48
SES	**low**			
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.278	0.722	54

Table 103
Recognition
at age 15 by social class in six categories
Urban sample

SES		high/high (SES 6)		
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.083	0.917	12
SES		**high/low (SES 5)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.316	0.684	19
SES		**middle/high (SES 4)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.235	0.765	17
SES		**middle/low (SES 3)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.063	0.938	16
SES		**low/high (SES 2)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.333	0.666	24
SES		**low/low (SES 1)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM5	Task Recognition	0.429	0.571	14

Rural Sample

Table 104
Pattern Score for the isolation of variables task at age 15
Rural sample

Variable	Task	0	1	2	3	4	5	N
IVP500	Plant Task	0.459	0.066	0.000	0.148	0.016	0.311	61
IVH500	House Task	0.492	0.066	0.016	0.131	0.049	0.246	61
IVT500	Toy Task	0.459	0.066	0.000	0.230	0.000	0.246	61

Table 105
Pattern Score for the isolation of variables task at age 15 by gender
Rural sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.606	0.061	0.000	0.121	0.030	0.182	33
IVH500	House Task	0.606	0.030	0.030	0.091	0.030	0.212	33
IVT500	Toy Task	0.515	0.061	0.000	0.212	0.000	0.212	33
Gender		**female**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.286	0.071	0.000	0.179	0.000	0.464	28
IVH500	House Task	0.357	0.107	0.000	0.179	0.071	0.286	28
IVT500	Toy Task	0.393	0.071	0.000	0.250	0.000	0.286	28

Table 106
Pattern Score for the isolation of variables task at age 15 by region
Rural sample
Region **North**

Variable	Task	0	1	2	3	4	5	N
IVP500	Plant Task	0.474	0.158	0.000	0.053	0.000	0.316	19
IVH500	House Task	0.579	0.105	0.053	0.053	0.105	0.105	19
IVT500	Toy Task	0.632	0.105	0.000	0.158	0.000	0.105	19

Continuation:
Table 106
Pattern Score for the isolation of variables task at age 15 by region
Rural sample

Region		West						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.556	0.056	0.000	0.222	0.000	0.167	18
IVH500	House Task	0.500	0.056	0.000	0.222	0.056	0.167	18
IVT500	Toy Task	0.444	0.056	0.000	0.278	0.000	0.222	18
Region		**South**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP500	Plant Task	0.375	0.000	0.000	0.167	0.042	0.417	24
IVH500	House Task	0.417	0.042	0.000	0.125	0.000	0.417	24
IVT500	Toy Task	0.333	0.042	0.000	0.250	0.000	0.375	24

Table 107
Level score for the isolation of variable task at age 15
Rural sample

Variable	Task	0	1	2	3	4	5	N
IVP501	Plant Task	0.377	0.148	0.082	0.082	0.213	0.098	61
IVH501	House Task	0.459	0.066	0.098	0.082	0.262	0.033	61
IVT501	Toy Task	0.410	0.098	0.213	0.049	0.164	0.066	61

Table 108
Level score for the isolation of variable task at age 15 by gender
Rural sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.545	0.121	0.061	0.091	0.121	0.061	33
IVH501	House Task	0.545	0.061	0.091	0.061	0.212	0.030	33
IVT501	Toy Task	0.455	0.091	0.212	0.030	0.152	0.061	33

Continuation:
Table 108
Level score for the isolation of variable task at age 15 by gender
Rural sample

Gender		female						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.179	0.179	0.107	0.071	0.321	0.143	28
IVH501	House Task	0.357	0.071	0.107	0.107	0.321	0.036	28
IVT501	Toy Task	0.357	0.107	0.214	0.071	0.179	0.071	28

Table 109
Level score for the isolation of variable task at age 15 by region
Rural sample

Region		North						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.316	0.316	0.000	0.053	0.105	0.211	19
IVH501	House Task	0.526	0.105	0.105	0.053	0.158	0.053	19
IVT501	Toy Task	0.526	0.211	0.158	0.000	0.053	0.053	19
Region		**West**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.556	0.056	0.111	0.111	0.111	0.056	18
IVH501	House Task	0.500	0.056	0.167	0.056	0.222	0.000	18
IVT501	Toy Task	0.444	0.056	0.222	0.056	0.167	0.056	18
Region		**South**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP501	Plant Task	0.292	0.083	0.125	0.083	0.375	0.042	24
IVH501	House Task	0.375	0.042	0.042	0.125	0.375	0.042	24
IVT501	Toy Task	0.292	0.042	0.250	0.083	0.250	0.083	24

Table 110
Identification of operative variable
at age 15
Rural sample

Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.607	0.049	0.066	0.279	61
IVH502	House Task	0.656	0.230	0.033	0.082	61
IVT502	Toy Task	0.705	0.164	0.016	0.115	61

Table 111
Identification of operative variable
at age 15 by gender
Rural sample

Gender **male**

Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.758	0.030	0.091	0.121	33
IVH502	House Task	0.727	0.212	0.030	0.030	33
IVT502	Toy Task	0.727	0.121	0.000	0.152	33

Gender **female**

Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.429	0.071	0.036	0.464	28
IVH502	House Task	0.571	0.250	0.036	0.143	28
IVT502	Toy Task	0.679	0.214	0.036	0.071	28

Table 112
Identification of operative variable
at age 15 by region
Rural sample

Region **North**

Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP502	Plant Task	0.632	0.000	0.000	0.368	19
IVH502	House Task	0.737	0.211	0.000	0.053	19
IVT502	Toy Task	0.842	0.158	0.000	0.000	19

Continuation:

Table 112
Identification of operative variable
at age 15 by region
Rural sample

Region		West				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP502	Plant Task	0.722	0.056	0.056	0.167	18
IVH502	House Task	0.667	0.222	0.111	0.000	18
IVT502	Toy Task	0.611	0.056	0.056	0.278	18
Region		**South**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP502	Plant Task	0.500	0.083	0.125	0.292	24
IVH502	House Task	0.583	0.250	0.000	0.167	24
IVT502	Toy Task	0.667	0.250	0.000	0.083	24

Table 113
Identification of non-operative variable
at age 15
Rural sample

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP503	Plant Task	0.557	0.230	0.066	0.148	61
IVH503	House Task	0.525	0.246	0.049	0.180	61
IVT503	Toy Task	0.525	0.311	0.016	0.148	61

Table 114
Identification of non-operative variable
at age 15 by gender
Rural sample

Gender		male				
Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP503	Plant Task	0.697	0.152	0.061	0.091	33
IVH503	House Task	0.606	0.182	0.061	0.152	33
IVT503	Toy Task	0.606	0.242	0.030	0.121	33

Gender		female				
Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP503	Plant Task	0.393	0.321	0.071	0.214	28
IVH503	House Task	0.429	0.321	0.036	0.214	28
IVT503	Toy Task	0.429	0.393	0.000	0.179	28

Table 115
Identification of non-operative variable
at age 15 by region
Rural sample

Region		North				
Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP503	Plant Task	0.579	0.211	0.053	0.158	19
IVH503	House Task	0.579	0.263	0.000	0.158	19
IVT503	Toy Task	0.684	0.158	0.000	0.158	19

Region		West				
Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by both	N
IVP503	Plant Task	0.667	0.111	0.111	0.111	18
IVH503	House Task	0.611	0.222	0.056	0.111	18
IVT503	Toy Task	0.611	0.333	0.000	0.056	18

Continuation:

Table 115
Identification of non-operative variable
at age 15 by region
Rural sample

Region		South				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by both**	**N**
IVP503	Plant Task	0.458	0.333	0.042	0.167	24
IVH503	House Task	0.417	0.250	0.083	0.250	24
IVT503	Toy Task	0.333	0.417	0.042	0.208	24

Table 116
Identification of neutral variable
at age 15
Rural sample

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.066	0.131	0.033	0.459	0.311	61
IVH504	House Task	0.016	0.164	0.098	0.459	0.262	61
IVT504	Toy Task	0.033	0.131	0.082	0.443	0.311	61

Table 117
Identification of neutral variable
at age 15 by gender
Rural sample

Gender		male					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
IVP504	Plant Task	0.030	0.212	0.030	0.515	0.212	33
IVH504	House Task	0.000	0.152	0.121	0.485	0.242	33
IVT504	Toy Task	0.000	0.152	0.061	0.485	0.303	33
Gender		**female**					
Variable	**Task**	**Not mentioned**	**Mentioned, but not explained**	**Quantity/ Value mentioned**	**Quantity/ Value wrong**	**Quantity/ Value right**	**N**
IVP504	Plant Task	0.107	0.036	0.036	0.393	0.429	28
IVH504	House Task	0.036	0.179	0.071	0.429	0.286	28
IVT504	Toy Task	0.071	0.1076	0.107	0.393	0.321	28

Table 118
Identification of neutral variable
at age 15 by region
Rural sample

Region		North					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.053	0.211	0.053	0.368	0.316	19
IVH504	House Task	0.000	0.211	0.263	0.421	0.105	19
IVT504	Toy Task	0.000	0.105	0.105	0.579	0.211	19

Region		West					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.167	0.222	0.000	0.500	0.111	18
IVH504	House Task	0.056	0.167	0.000	0.611	0.167	18
IVT504	Toy Task	0.111	0.167	0.056	0.389	0.278	18

Region		South					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP504	Plant Task	0.000	0.000	0.042	0.500	0.458	24
IVH504	House Task	0.000	0.125	0.042	0.375	0.458	24
IVT504	Toy Task	0.000	0.125	0.083	0.375	0.417	24

Table 119
Impression
at age 15
Rural sample

Variable	Task	oscillating	reflecting	certain	N
IVP505	Plant Task	0.250	0.196	0.554	56
IVH505	House Task	0.255	0.200	0.545	55
IVT505	Toy Task	0.000	1.000	0.000	64

Table 120
Impression
at age 15 by gender
Rural sample

Gender		male			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.355	0.194	0.452	31
IVH505	House Task	0.355	0.129	0.516	31
IVT505	Toy Task	0.000	1.000	0.000	35
Gender		**female**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.120	0.200	0.680	25
IVH505	House Task	0.125	0.292	0.583	24
IVT505	Toy Task	0.000	1.000	0.000	29

Table 121
Impression
at age 15 by region
Rural sample

Region		North			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.133	0.000	0.867	15
IVH505	House Task	0.154	0.077	0.769	13
IVT505	Toy Task	0.000	1.000	0.000	19
Region		**West**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.333	0.333	0.333	18
IVH505	House Task	0.278	0.389	0.333	18
IVT505	Toy Task	0.000	1.000	0.000	20

Continuation:
Table 121
Impression
at age 15 by region
Rural sample

Region		South			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP505	Plant Task	0.261	0.217	0.522	23
IVH505	House Task	0.292	0.125	0.583	24
IVT505	Toy Task	0.000	1.000	0.000	25

Table 122
Use of evidence for identification
of operative variable
at age 15
Rural sample

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE502	Plant Task	0.224	0.388	0.020	0.367	49
IVHE502	House Task	0.220	0.580	0.040	0.160	50
IVTE502	Toy Task	0.213	0.532	0.064	0.191	47

Table 123
Use of evidence for identification
of operative variable
at age 15 by gender
Rural sample

Gender		male				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.357	0.393	0.036	0.214	28
IVHE502	House Task	0.250	0.571	0.071	0.107	28
IVTE502	Toy Task	0.172	0.552	0.103	0.172	29

Continuation:
Table 123
Use of evidence for identification of operative variable at age 15 by gender
Rural sample

Gender		female				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.048	0.381	0.000	0.571	21
IVHE502	House Task	0.182	0.591	0.000	0.227	22
IVTE502	Toy Task	0.278	0.500	0.000	0.222	18

Table 124
Use of evidence for identification of non-operative variable at age 15 by region
Rural sample

Region		North				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.250	0.167	0.000	0.583	12
IVHE502	House Task	0.364	0.545	0.000	0.091	11
IVTE502	Toy Task	0.300	0.500	0.000	0.200	10
Region		**West**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.375	0.375	0.063	0.188	16
IVHE502	House Task	0.188	0.563	0.063	0.188	16
IVTE502	Toy Task	0.267	0.400	0.067	0.267	15
Region		**South**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE502	Plant Task	0.095	0.524	0.000	0.381	21
IVHE502	House Task	0.174	0.609	0.043	0.174	23
IVTE502	Toy Task	0.136	0.636	0.091	0.136	22

Table 125
Use of evidence for identification
of non-operative variable
at age 15
Rural sample

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE503	Plant Task	0.333	0.556	0.074	0.037	54
IVHE503	House Task	0.200	0.740	0.040	0.020	50
IVTE503	Toy Task	0.306	0.633	0.041	0.020	49

Table 126
Use of evidence for identification
of non-operative variable
at age 15 by gender
Rural sample

Gender **male**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE503	Plant Task	0.414	0.483	0.103	0.000	29
IVHE503	House Task	0.185	0.778	0.037	0.000	27
IVTE503	Toy Task	0.407	0.519	0.074	0.000	27

Gender **female**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE503	Plant Task	0.240	0.640	0.040	0.080	25
IVHE503	House Task	0.217	0.696	0.043	0.043	23
IVTE503	Toy Task	0.182	0.773	0.000	0.045	22

Table 127
Use of evidence for identification
of non-operative variable
at age 15 by region
Rural sample

Region	North					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.214	0.643	0.000	0.143	14
IVHE503	House Task	0.182	0.727	0.000	0.091	11
IVTE503	Toy Task	0.167	0.750	0.000	0.083	12
Region	**West**					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.444	0.333	0.222	0.000	18
IVHE503	House Task	0.235	0.765	0.000	0.000	17
IVTE503	Toy Task	0.267	0.600	0.133	0.000	15
Region	**South**					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE503	Plant Task	0.318	0.682	0.000	0.000	22
IVHE503	House Task	0.182	0.727	0.091	0.000	22
IVTE503	Toy Task	0.409	0.591	0.000	0.000	22

Table 128
Use of evidence for identification
of neutral variable
at age 15
Rural sample

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE504	Plant Task	0.255	0.471	0.059	0.216	51
IVHE504	House Task	0.326	0.391	0.065	0.217	46
IVTE504	Toy Task	0.191	0.489	0.021	0.298	47

Table 129
Use of evidence for identification of neutral variable at age 15 by gender
Rural sample

Gender	male					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.345	0.448	0.034	0.172	29
IVHE504	House Task	0.321	0.429	0.071	0.179	28
IVTE504	Toy Task	0.185	0.556	0.037	0.222	27
Gender	**female**					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.136	0.500	0.091	0.273	22
IVHE504	House Task	0.333	0.333	0.056	0.278	18
IVTE504	Toy Task	0.200	0.400	0.000	0.400	20

Table 130
Use of evidence for identification of neutral variable at age 15 by region
Rural sample

Region	North					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.385	0.154	0.077	0.385	13
IVHE504	House Task	0.444	0.444	0.000	0.111	9
IVTE504	Toy Task	0.273	0.455	0.000	0.273	11
Region	**West**					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.438	0.438	0.063	0.063	16
IVHE504	House Task	0.533	0.267	0.133	0.067	15
IVTE504	Toy Task	0.286	0.357	0.000	0.357	14

Continuation

Table 130
Use of evidence for identification of neutral variable at age 15 by region
Rural sample

Region	South					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE504	Plant Task	0.045	0.682	0.045	0.227	22
IVHE504	House Task	0.136	0.455	0.045	0.364	22
IVTE504	Toy Task	0.091	0.591	0.045	0.273	22

3.8 Assessment of the seventeen year old children

Urban Sample

Table 131
Pattern Score for the isolation of variables task
at age 17
Urban sample

Variable	Task	0	1	2	3	4	5	N
IVP600	Plant Task	0.288	0.017	0.000	0.153	0.051	0.492	59
IVH600	House Task	0.373	0.017	0.017	0.102	0.034	0.458	59
IVT600	Toy Task	0.153	0.034	0.034	0.169	0.034	0.576	59

Table 132
Pattern Score for the isolation of variables task
at age 17 by teacher rating
Urban sample

Teacher Rating		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.308	0.026	0.000	0.128	0.051	0.487	39
IVH600	House Task	0.333	0.000	0.000	0.128	0.051	0.487	39
IVT600	Toy Task	0.128	0.026	0.026	0.179	0.000	0.641	39
Teacher Rating		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.250	0.000	0.000	0.200	0.050	0.500	20
IVH600	House Task	0.450	0.050	0.050	0.050	0.000	0.400	20
IVT600	Toy Task	0.200	0.050	0.050	0.150	0.100	0.450	20

Table 133
Pattern Score for the isolation of variables task
at age 17 by gender
Urban sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.280	0.040	0.000	0.200	0.040	0.440	25
IVH600	House Task	0.400	0.040	0.000	0.160	0.000	0.400	25
IVT600	Toy Task	0.200	0.040	0.040	0.160	0.000	0.560	25
Gender		**female**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.294	0.000	0.000	0.118	0.059	0.529	34
IVH600	House Task	0.353	0.000	0.029	0.059	0.059	0.500	34
IVT600	Toy Task	0.118	0.029	0.029	0.176	0.059	0.588	34

Table 134
Pattern Score for the isolation of variables task
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.265	0.029	0.000	0.176	0.088	0.441	34
IVH600	House Task	0.353	0.029	0.029	0.118	0.029	0.441	34
IVT600	Toy Task	0.118	0.029	0.059	0.147	0.029	0.618	34
SES		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.320	0.000	0.000	0.120	0.000	0.560	25
IVH600	House Task	0.400	0.000	0.000	0.080	0.040	0.480	25
IVT600	Toy Task	0.200	0.040	0.000	0.200	0.040	0.520	25

Table 135
Pattern Score for the isolation of variables task
at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.250	0.000	0.000	0.125	0.000	0.625	8
IVH600	House Task	0.375	0.000	0.000	0.250	0.000	0.375	8
IVT600	Toy Task	0.000	0.000	0.000	0.250	0.000	0.750	8
SES		**high/low (SES 5)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.250	0.000	0.000	0.167	0.250	0.333	12
IVH600	House Task	0.333	0.000	0.083	0.083	0.000	0.500	12
IVT600	Toy Task	0.167	0.000	0.167	0.083	0.000	0.583	12
SES		**middle/high (SES 4)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.286	0.071	0.000	0.214	0.000	0.429	14
IVH600	House Task	0.357	0.071	0.000	0.071	0.071	0.429	14
IVT600	Toy Task	0.143	0.071	0.000	0.143	0.071	0.571	14
SES		**middle/low (SES 3)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.444	0.000	0.000	0.222	0.000	0.333	9
IVH600	House Task	0.444	0.000	0.000	0.111	0.111	0.333	9
IVT600	Toy Task	0.333	0.111	0.000	0.444	0.000	0.111	9
SES		**low/high (SES 2)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.222	0.000	0.000	0.000	0.000	0.778	9
IVH600	House Task	0.222	0.000	0.000	0.111	0.000	0.667	9
IVT600	Toy Task	0.000	0.000	0.000	0.111	0.000	0.889	9

Continuation:
Table 135
Pattern Score for the isolation of variables task
at age 17 by social class in six categories
Urban sample

SES		low/low (SES 1)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP600	Plant Task	0.286	0.000	0.000	0.143	0.000	0.571	7
IVH600	House Task	0.571	0.000	0.000	0.000	0.000	0.429	7
IVT600	Toy Task	0.286	0.000	0.000	0.000	0.143	0.571	7

Table 136
Level score for the isolation of variable task
at age 17
Urban sample

Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.271	0.017	0.102	0.119	0.390	0.102	59
IVH601	House Task	0.356	0.017	0.051	0.136	0.339	0.102	59
IVT601	Toy Task	0.153	0.000	0.153	0.068	0.542	0.085	59

Table 137
Level score for the isolation of variable task
at age 17
Urban sample
Extern variable: Teacher rating

Teacher Rating		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.308	0.000	0.051	0.128	0.410	0.103	39
IVH601	House Task	0.333	0.000	0.026	0.179	0.333	0.128	39
IVT601	Toy Task	0.128	0.000	0.154	0.051	0.590	0.077	39
Teacher Rating		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.200	0.050	0.200	0.100	0.350	0.100	20
IVH601	House Task	0.400	0.050	0.100	0.050	0.350	0.050	20
IVT601	Toy Task	0.200	0.000	0.150	0.100	0.450	0.100	20

Table 138
Level score for the isolation of variable task
at age 17 by gender
Urban sample

Gender		male						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.280	0.000	0.160	0.120	0.320	0.120	25
IVH601	House Task	0.400	0.000	0.120	0.120	0.200	0.160	25
IVT601	Toy Task	0.200	0.000	0.160	0.040	0.440	0.160	25
Gender		**female**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.265	0.029	0.059	0.118	0.441	0.088	34
IVH601	House Task	0.324	0.029	0.000	0.147	0.441	0.059	34
IVT601	Toy Task	0.118	0.000	0.147	0.088	0.618	0.029	34

Table 139
Level score for the isolation of variable task
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.265	0.000	0.088	0.206	0.353	0.088	34
IVH601	House Task	0.324	0.029	0.059	0.147	0.324	0.118	34
IVT601	Toy Task	0.118	0.000	0.147	0.059	0.588	0.088	34
SES		**low**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.280	0.040	0.120	0.000	0.440	0.120	25
IVH601	House Task	0.400	0.000	0.040	0.120	0.360	0.080	25
IVT601	Toy Task	0.200	0.000	0.160	0.080	0.480	0.080	25

Table 140
Level score for the isolation of variable task at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.250	0.000	0.000	0.125	0.375	0.250	8
IVH601	House Task	0.375	0.000	0.000	0.250	0.125	0.250	8
IVT601	Toy Task	0.000	0.000	0.125	0.125	0.500	0.250	8
SES		**high/low (SES 5)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.250	0.000	0.083	0.333	0.333	0.000	12
IVH601	House Task	0.333	0.000	0.083	0.083	0.417	0.083	12
IVT601	Toy Task	0.167	0.000	0.083	0.000	0.750	0.000	12
SES		**middle/high (SES 4)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.286	0.000	0.143	0.143	0.357	0.071	14
IVH601	House Task	0.286	0.071	0.071	143	0.357	0.071	14
IVT601	Toy Task	0.143	0.000	0.214	0.071	0.500	0.071	14
SES		**middle/low (SES 3)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.444	0.000	0.222	0.000	0.333	0.000	9
IVH601	House Task	0.444	0.000	0.111	0.222	0.222	0.000	9
IVT601	Toy Task	0.333	0.000	0.444	0.111	0.111	0.000	9
SES		**low/high (SES 2)**						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.222	0.000	0.000	0.000	0.667	0.111	9
IVH601	House Task	0.222	0.000	0.000	0.111	0.444	0.222	9
IVT601	Toy Task	0.000	0.000	0.000	0.111	0.778	0.111	9

Continuation:
Table 140
Level score for the isolation of variable task at age 17 by social class in six categories
Urban sample

SES		low/low (SES 1)						
Variable	**Task**	**0**	**1**	**2**	**3**	**4**	**5**	**N**
IVP601	Plant Task	0.143	0.143	0.143	0.000	0.286	0.286	7
IVH601	House Task	0.571	0.000	0.000	0.000	0.429	0.000	7
IVT601	Toy Task	0.286	0.000	0.000	0.000	0.571	0.143	7

Table 141
Identification of operative variable at age 17
Urban sample

Variable	Task	no identifi-cation	positive operative Variable	negative operative Variablr	pos. & neg. operative Variable	N
IVP602	Plant Task	0.322	0.220	0.119	0.339	59
IVH602	House Task	0.441	0.203	0.051	0.305	59
IVT602	Toy Task	0.254	0.458	0.017	0.271	59

Table 142
Identification of operative variable at age 17 by teacher rating
Urban sample

Teacher Rating		high				
Variable	**Task**	**no identifi-cation**	**positive operative Variable**	**negative operative Variablr**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.359	0.231	0.103	0.308	39
IVH602	House Task	0.410	0.154	0.077	0.359	39
IVT602	Toy Task	0.205	0.462	0.000	0.333	39
Teacher Rating		**low**				
Variable	**Task**	**no identifi-cation**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.250	0.200	0.150	0.400	20
IVH602	House Task	0.500	0.300	0.000	0.200	20
IVT602	Toy Task	0.350	0.450	0.050	0.150	20

Table 143
Identification of operative variable
at age 17 by gender
Urban sample

Gender		male				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.360	0.240	0.120	0.280	25
IVH602	House Task	0.520	0.120	0.040	0.320	25
IVT602	Toy Task	0.280	0.360	0.000	0.360	25
Gender		**female**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.294	0.206	0.118	0.382	34
IVH602	House Task	0.382	0.265	0.059	0.294	34
IVT602	Toy Task	0.235	0.529	0.029	0.206	34

Table 144
Identification of operative variable
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.324	0.206	0.118	0.353	34
IVH602	House Task	0.441	0.176	0.088	0.294	34
IVT602	Toy Task	0.206	0.412	0.029	0.353	34
SES		**low**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.320	0.240	0.120	0.320	25
IVH602	House Task	0.440	0.240	0.000	0.320	25
IVT602	Toy Task	0.320	0.520	0.000	0.160	25

Table 145
Identification of operative variable
at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	Task	no identification	positive operative Variable	negative operative Variable	pos. & neg. operative Variable	N
IVP602	Plant Task	0.250	0.375	0.000	0.375	8
IVH602	House Task	0.625	0.000	0.000	0.375	8
IVT602	Toy Task	0.125	0.125	0.000	0.750	8
SES		**high/low (SES 5)**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.250	0.167	0.250	0.333	12
IVH602	House Task	0.417	0.250	0.167	0.167	12
IVT602	Toy Task	0.250	0.500	0.083	0.167	12
SES		**middle/high (SES 4)**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.429	0.143	0.071	0.357	14
IVH602	House Task	0.357	0.214	0.071	0.357	14
IVT602	Toy Task	0.214	0.500	0.000	0.286	14
SES		**middle/low (SES 3)**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.444	0.111	0.222	0.222	9
IVH602	House Task	0.556	0.111	0.000	0.333	9
IVT602	Toy Task	0.667	0.333	0.000	0.000	9
SES		**low/high (SES 2)**				
Variable	**Task**	**no identification**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.222	0.444	0.111	0.222	9
IVH602	House Task	0.222	0.333	0.000	0.444	9
IVT602	Toy Task	0.000	0.778	0.000	0.222	9

Continuation:

Table 145
Identification of operative variable
at age 17 by social class in six categories
Urban sample

SES		low/low (SES 1)				
Variable	**Task**	**no identifi-cation**	**positive operative Variable**	**negative operative Variable**	**pos. & neg. operative Variable**	**N**
IVP602	Plant Task	0.286	0.143	0.000	0.571	7
IVH602	House Task	0.571	0.286	0.000	0.143	7
IVT602	Toy Task	0.286	0.429	0.000	0.286	7

Table 146
Identification of non-operative variable
at age 17
Urban sample

Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.407	0.254	0.051	0.288	59
IVH603	House Task	0.441	0.305	0.068	0.186	59
IVT603	Toy Task	0.237	0.458	0.034	0.271	59

Table 147
Identification of non-operative variable
at age 17 by teacher rating
Urban sample

Teacher Rating		high				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.385	0.256	0.026	0.333	39
IVH603	House Task	0.410	0.308	0.026	0.256	39
IVT603	Toy Task	0.231	0.513	0.051	0.205	39
Teacher Rating		**low**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.450	0.250	0.100	0.200	20
IVH603	House Task	0.500	0.300	0.150	0.050	20
IVT603	Toy Task	0.250	0.350	0.000	0.400	20

Table 148
Identification of non-operative variable
at age 17 by gender
Urban sample

Gender		male				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.440	0.320	0.000	0.240	25
IVH603	House Task	0.480	0.280	0.040	0.200	25
IVT603	Toy Task	0.320	0.400	0.040	0.240	25
Gender		**female**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.382	0.206	0.088	0.324	34
IVH603	House Task	0.412	0.324	0.088	0.176	34
IVT603	Toy Task	0.176	0.500	0.029	0.294	34

Table 149
Identification of non-operative variable
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.382	0.324	0.029	0.265	34
IVH603	House Task	0.441	0.324	0.029	0.206	34
IVT603	Toy Task	0.206	0.529	0.059	0.206	34
SES		**low**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.440	0.160	0.080	0.320	25
IVH603	House Task	0.440	0.280	0.120	0.160	25
IVT603	Toy Task	0.280	0.360	0.000	0.360	25

Table 150
Identification of non-operative variable
at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.250	0.375	0.000	0.375	8
IVH603	House Task	0.375	0.500	0.000	0.125	8
IVT603	Toy Task	0.125	0.625	0.000	0.250	8
SES		**high/low (SES 5)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.417	0.333	0.000	0.250	12
IVH603	House Task	0.333	0.417	0.000	0.250	12
IVT603	Toy Task	0.167	0.583	0.083	0.167	12
SES		**middle/high (SES 4)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.429	0.286	0.071	0.214	14
IVH603	House Task	0.571	0.143	0.071	0.214	14
IVT603	Toy Task	0.286	0.429	0.071	0.214	14
SES		**middle/low (SES 3)**				
Variable	**Task**	**No Exclusion**	**Exclusion by positive value**	**Exclusion by negative value**	**Exclusion by +/- value**	**N**
IVP603	Plant Task	0.667	0.222	0.000	0.111	9
IVH603	House Task	0.444	0.222	0.222	0.333	9
IVT603	Toy Task	0.444	0.444	0.000	0.111	9

Continuation:
Table 150
Identification of non-operative variable
at age 17 by social class in six categories
Urban sample

SES **low/high (SES 2)**

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by +/- value	N
IVP603	Plant Task	0.222	0.111	0.111	0.556	9
IVH603	House Task	0.333	0.222	0.111	0.333	9
IVT603	Toy Task	0.111	0.333	0.000	0.556	9

SES **low/low (SES 1)**

Variable	Task	No Exclusion	Exclusion by positive value	Exclusion by negative value	Exclusion by +/- value	N
IVP603	Plant Task	0.429	0.143	0.143	0.286	7
IVH603	House Task	0.571	0.429	0.000	0.000	7
IVT603	Toy Task	0.286	0.286	0.000	0.429	7

Table 151
Identification of neutral variable
at age 17
Urban sample

Total Score

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.051	0.034	0.390	0.525	59
IVH604	House Task	0.017	0.051	0.119	0.407	0.407	59
IVT604	Toy Task	0.051	0.051	0.068	0.203	0.678	59

Table 152
Identification of neutral variable
at age 17 by teacher rating
Urban sample

Teacher Rating **high**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.051	0.026	0.359	0.564	39
IVH604	House Task	0.000	0.077	0.077	0.385	0.462	39
IVT604	Toy Task	0.000	0.026	0.077	0.205	0.692	39

Continuation:
Table 152
Identification of neutral variable
at age 17 by teacher rating
Urban sample

Teacher Rating **low**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.050	0.050	0.450	0.450	20
IVH604	House Task	0.050	0.000	0.200	0.450	0.3000	20
IVT604	Toy Task	0.000	0.100	0.050	0.200	0.650	20

Table 153
Identification of neutral variable
at age 17 by gender
Urban sample

Gender **male**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.120	0.040	0.440	0.400	25
IVH604	House Task	0.000	0.080	0.080	0.480	0.360	25
IVT604	Toy Task	0.000	0.080	0.080	0.240	0.600	25

Gender **female**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.000	0.029	0.353	0.618	34
IVH604	House Task	0.029	0.029	0.147	0.353	0.441	34
IVT604	Toy Task	0.000	0.029	0.059	0.176	0.735	34

Table 154
Identification of neutral variable
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES **high**

Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.059	0.059	0.353	0.529	34
IVH604	House Task	0.00	0.088	0.088	0.353	0.471	34
IVT604	Toy Task	0.000	0.059	0.029	0.206	0.706	34

Continuation:
Table 154
Identification of neutral variable
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		low					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.040	0.000	0.440	0.520	25
IVH604	House Task	0.040	0.000	0.160	0.480	0.320	25
IVT604	Toy Task	0.000	0.040	0.120	0.200	0.640	25

Table 155
Identification of neutral variable
at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.000	0.000	0.250	0.750	8
IVH604	House Task	0.000	0.125	0.000	0.375	0.500	8
IVT604	Toy Task	0.000	0.000	0.000	0.000	1.000	8
SES		high/low (SES 5)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.000	0.083	0.333	0.583	12
IVH604	House Task	0.000	0.083	0.083	0.250	0.583	12
IVT604	Toy Task	0.000	0.167	0.000	0.167	0.667	12
SES		middle/high (SES 4)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.143	0.071	0.429	0.357	14
IVH604	House Task	0.000	0.071	0.143	0.429	0.357	14
IVT604	Toy Task	0.000	0.000	0.071	0.357	0.571	14

Continuation:
Table 155
Identification of neutral variable
at age 17 by social class in six categories
Urban sample

SES		middle/low (SES 3)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.111	0.000	0.667	0.222	9
IVH604	House Task	0.000	0.000	0.222	0.778	0.000	9
IVT604	Toy Task	0.000	0.000	0.222	0.444	0.333	9
SES		low/high (SES 2)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.000	0.000	0.222	0.778	9
IVH604	House Task	0.000	0.000	0.222	0.222	0.556	9
IVT604	Toy Task	0.000	0.000	0.111	0.000	0.889	9
SES		low/low (SES 1)					
Variable	Task	Not mentioned	Mentioned, but not explained	Quantity/ Value mentioned	Quantity/ Value wrong	Quantity/ Value right	N
IVP604	Plant Task	0.000	0.000	0.000	0.429	0.571	7
IVH604	House Task	0143	0.000	0.000	0.429	0.429	7
IVT604	Toy Task	0.000	0.143	0.000	0.143	0.714	7

Table 156
Use of evidence for identification
of operative variable
at age 17
Urban sample

Total Score

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE602	Plant Task	0.060	0.340	0.060	0.540	50
IVHE602	House Task	0.083	0.396	0.042	0.479	48
IVTE602	Toy Task	0.039	0.451	0.039	0.471	51

Table 157
Use of evidence for identification of operative variable at age 17 by teacher rating
Urban sample

Teacher Rating high

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE602	Plant Task	0.063	0.313	0.063	0.563	32
IVHE602	House Task	0.063	0.344	0.063	0.531	32
IVTE602	Toy Task	0.029	0.412	0.029	0.529	34

Teacher Rating low

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE602	Plant Task	0.056	0.389	0.056	0.500	18
IVHE602	House Task	0.125	0.500	0.000	0.375	16
IVTE602	Toy Task	0.059	0.529	0.059	0.353	17

Table 158
Use of evidence for identification of operative variable at age 17 by gender
Urban sample

Gender male

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE602	Plant Task	0.048	0.238	0.095	0.619	21
IVHE602	House Task	0.100	0.350	0.050	0.500	20
IVTE602	Toy Task	0.000	0.550	0.000	0.450	20

Gender female

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE602	Plant Task	0.069	0.414	0.034	0.484	29
IVHE602	House Task	0.071	0.429	0.036	0.464	28
IVTE602	Toy Task	0.065	0.387	0.067	0.484	31

Table 159
Use of evidence for identification
of operative variable
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE602	Plant Task	0.069	0.310	0.034	0.586	29
IVHE602	House Task	0.100	0.400	0.033	0.467	30
IVTE602	Toy Task	0.000	0.414	0.000	0.586	29
SES		**low**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE602	Plant Task	0.048	0.381	0.095	0.476	21
IVHE602	House Task	0.056	0.389	0.056	0.500	18
IVTE602	Toy Task	0.091	0.500	0.091	0.318	22

Table 160
Use of evidence for identification
of operative variable
at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE602	Plant Task	0.000	0.333	0.000	0.667	6
IVHE602	House Task	0.167	0.000	0.000	0.,833	6
IVTE602	Toy Task	0.000	0.125	0.000	0.875	8
SES		**high/low (SES 5)**				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE602	Plant Task	0.091	0.273	0.000	0.636	11
IVHE602	House Task	0.091	0.727	0.000	0.182	11
IVTE602	Toy Task	0.000	0.556	0.000	0.444	9

Continuation:
Table 160
Use of evidence for identification of operative variable at age 17 by social class in six categories
Urban sample

SES	middle/high (SES 4)					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE602	Plant Task	0.083	0.333	0.083	0.500	12
IVHE602	House Task	0.077	0.308	0.077	0.538	13
IVTE602	Toy Task	0.000	0.500	0.000	0.500	12
SES	**middle/low (SES 3)**					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE602	Plant Task	0.125	0.500	0.250	0.125	8
IVHE602	House Task	0.143	0.286	0.000	0.571	7
IVTE602	Toy Task	0.286	0.571	0.143	0.000	7
SES	**low/high (SES 2)**					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE602	Plant Task	0.000	0.286	0.000	0.714	7
IVHE602	House Task	0.000	0.500	0.000	0.500	6
IVTE602	Toy Task	0.000	0.444	0.111	0.444	9
SES	**low/low (SES 1)**					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE602	Plant Task	0.000	0.333	0.000	0.667	6
IVHE602	House Task	0.000	0.400	0.200	0.400	5
IVTE602	Toy Task	0.000	0.500	0.000	0.500	6

Table 161
Use of evidence for identification
of non-operative variable
at age 17
Urban sample

Total Score

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE603	Plant Task	0.205	0.455	0.136	0.205	44
IVHE603	House Task	0.262	0.595	0.048	0.095	42
IVTE603	Toy Task	0.160	0.600	0.060	0.180	50

Table 162
Use of evidence for identification
of non-operative variable
at age 17 by teacher rating
Urban sample

Teacher Rating high

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE603	Plant Task	0.138	0.483	0.138	0.241	29
IVHE603	House Task	0.143	0.643	0.071	0.143	28
IVTE603	Toy Task	0.063	0.656	0.031	0.250	32

Teacher Rating low

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE603	Plant Task	0.333	0.4000	0.133	0.133	15
IVHE603	House Task	0.500	0.500	0.000	0.000	14
IVTE603	Toy Task	0.333	0.500	0.111	0.056	18

Table 163
Use of evidence for identification
of non-operative variable
at age 17 by gender
Urban sample

Gender	male					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE603	Plant Task	0.167	0.444	0.056	0.333	18
IVHE603	House Task	0.176	0.647	0.000	0.176	17
IVTE603	Toy Task	0.105	0.632	0.053	0.211	19

Gender	female					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE603	Plant Task	0.231	0.462	0.192	0.115	26
IVHE603	House Task	0.320	0.560	0.080	0.040	25
IVTE603	Toy Task	0.194	0.581	0.065	0.161	31

Table 164
Use of evidence for identification
of non-operative variable
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES	high					
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE603	Plant Task	0.192	0.538	0.115	0.154	26
IVHE603	House Task	0.222	0.667	0.037	0.074	27
IVTE603	Toy Task	0.172	0.655	0.034	0.138	29

Continuation:
Table 164
Use of evidence for identification
of non-operative variable
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		low				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE603	Plant Task	0.222	0.333	0.167	0.278	18
IVHE603	House Task	0.333	0.467	0.067	0.133	15
IVTE603	Toy Task	0.143	0.524	0.095	0.238	21

Table 165
Use of evidence for identification
of non-operative variable
at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE603	Plant Task	0.000	0.667	0.167	0.167	6
IVHE603	House Task	0.000	0.833	0.000	0.167	6
IVTE603	Toy Task	0.143	0.714	0.000	0.143	7

SES		high/low (SES 5)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE603	Plant Task	0.333	0.444	0.000	0.222	9
IVHE603	House Task	0.300	0.600	0.000	0.100	10
IVTE603	Toy Task	0.182	0.636	0.091	0.091	11

Continuation:
Table 165
Use of evidence for identification
of non-operative variable
at age 17 by social class in six categories
Urban sample

SES **middle/high (SES 4)**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE603	Plant Task	0.182	0.545	0.182	0.091	11
IVHE603	House Task	0.273	0.636	0.091	0.000	11
IVTE603	Toy Task	0.182	0.636	0.000	0.182	11

SES **middle/low (SES 3)**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE603	Plant Task	0.286	0.429	0.143	0.143	7
IVHE603	House Task	0.500	0.333	0.167	0.000	6
IVTE603	Toy Task	0.125	0.625	0.125	0.125	8

SES **low/high (SES 2)**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE603	Plant Task	0.286	0.143	0.000	0.571	7
IVHE603	House Task	0.167	0.667	0.000	0.167	6
IVTE603	Toy Task	0.125	0.500	0.000	0.375	8

SES **low/low (SES 1)**

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE603	Plant Task	0.000	0.500	0.500	0.000	4
IVHE603	House Task	0.333	0.333	0.000	0.333	3
IVTE603	Toy Task	0.200	0.400	0.200	0.200	5

Table 166
Use of evidence for identification of non-operative variable at age 17
Urban sample

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE604	Plant Task	0.196	0.283	0.043	0.478	46
IVHE604	House Task	0.175	0.350	0.025	0.450	40
IVTE604	Toy Task	0.080	0.320	0.600	0.587	50

Table 167
Use of evidence for identification of non-operative variable at age 17 by teacher rating
Urban sample

Teacher Rating high

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE604	Plant Task	0.172	0.241	0.034	0.552	29
IVHE604	House Task	0.143	0.321	0.036	0.500	28
IVTE604	Toy Task	0.057	0.314	0.000	0.629	35

Teacher Rating low

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE604	Plant Task	0.235	0.353	0.059	0.353	17
IVHE604	House Task	0.250	0.417	0.000	0.333	12
IVTE604	Toy Task	0.133	0.333	0.000	0.533	15

Table 168
Use of evidence for identification of non-operative variable at age 17 by gender
Urban sample

Gender male

Variable	Task	no coding	two pictures used	three pictures used	four pictures used	N
IVPE604	Plant Task	0.176	0.176	0.000	0.647	17
IVHE604	House Task	0.176	0.294	0.000	0.529	17
IVTE604	Toy Task	0.050	0.350	0.000	0.600	20

Continuation:

Table 168
Use of evidence for identification
of non-operative variable
at age 17 by gender
Urban sample

Gender		female				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.207	0.345	0.069	0.379	29
IVHE604	House Task	0.174	0.391	0.043	0.391	23
IVTE604	Toy Task	0.100	0.300	0.000	0.600	30

Table 169
Use of evidence for identification
of non-operative variable
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.154	0.346	0.038	0.462	26
IVHE604	House Task	0.125	0.250	0.042	0.583	24
IVTE604	Toy Task	0.032	0.387	0.000	0.581	31

SES		low				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.250	0.200	0.050	0.500	20
IVHE604	House Task	0.250	0.500	0.000	0.250	16
IVTE604	Toy Task	0.158	0.211	0.000	0.632	19

Table 170
Use of evidence for identification of non-operative variable at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.000	0.400	0.000	0.600	5
IVHE604	House Task	0.167	0.167	0.000	0.667	6
IVTE604	Toy Task	0.000	0.250	0.000	0.750	8

SES		high/low (SES 5)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.200	0.400	0.000	0.400	10
IVHE604	House Task	0.125	0.125	0.000	0.750	8
IVTE604	Toy Task	0.091	0.364	0.000	0.545	11

SES		middle/high (SES 4)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.182	0.273	0.091	0.455	11
IVHE604	House Task	0.100	0.400	0.100	0.400	10
IVTE604	Toy Task	0.000	0.500	0.000	0.500	12

SES		middle/low (SES 3)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.429	0.286	0.000	0.286	7
IVHE604	House Task	0.333	0.667	0.000	0.000	6
IVTE604	Toy Task	0.429	0.286	0.000	0.286	7

Continuation:
Table 170
Use of evidence for identification
of non-operative variable
at age 17 by social class in six categories
Urban sample

SES		low/high (SES 2)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.000	0.000	0.143	0.857	7
IVHE604	House Task	0.143	0.571	0.000	0.286	7
IVTE604	Toy Task	0.000	0.250	0.000	0.750	8

SES		low/low (SES 1)				
Variable	**Task**	**no coding**	**two pictures used**	**three pictures used**	**four pictures used**	**N**
IVPE604	Plant Task	0.333	0.333	0.000	0.333	6
IVHE604	House Task	0.333	0.000	0.000	0.667	3
IVTE604	Toy Task	0.000	0.000	0.000	0.100	4

Table 171
Impression
at age 17
Urban sample

Variable	Task	oscillating	reflecting	certain	N
IVP605	Plant Task	0.105	0.158	0.737	57
IVH605	House Task	0.107	0.125	0.768	56
IVT600	Toy Task	0.143	0.125	0.732	56

Table 172
Impression
at age 17 by teacher rating
Urban sample

Teacher Rating		high			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.132	0.184	0.684	38
IVH605	House Task	0.081	0.135	0.784	37
IVT600	Toy Task	0.189	0.135	0.676	37

Continuation:

Table 172
Impression
at age 17 by teacher rating
Urban sample

Teacher Rating		low			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.053	0.105	0.842	19
IVH605	House Task	0.158	0.105	0.737	19
IVT600	Toy Task	0.053	0.105	0.842	19

Table 173
Impression
at age 17 by gender
Urban sample

Gender		male			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.080	0.200	0.720	25
IVH605	House Task	0.080	0.120	0.800	25
IVT605	Toy Task	0.120	0.160	0.720	25
Gender		**female**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.125	0.125	0.750	32
IVH605	House Task	0.129	0.129	0.742	31
IVT605	Toy Task	0.161	0.097	0.742	31

Table 174
Impression
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		high			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.091	0.242	0.667	33
IVH605	House Task	0.065	0.194	0.742	31
IVT605	Toy Task	0.156	0.188	0.656	32

Continuation:

Table 174
Impression
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES		low			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.125	0.042	0.833	24
IVH605	House Task	0.160	0.040	0.800	25
IVT600	Toy Task	0.125	0.042	0.833	24

Table 175
Impression
at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.125	0.000	0.875	8
IVH605	House Task	0.000	0.000	1.000	8
IVT600	Toy Task	0.125	0.125	0.750	8
SES		**high/low (SES 5)**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.091	0.364	0.545	11
IVH605	House Task	0.091	0.364	0.545	11
IVT600	Toy Task	0.100	0.300	0.600	10
SES		**middle/high (SES 4)**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.071	0.286	0.643	14
IVH605	House Task	0.083	0.167	0.750	12
IVT600	Toy Task	0.214	0.143	0.643	14

Continuation:

Table 175
Impression
at age 17 by social class in six categories
Urban sample

SES		middle/low (SES 3)			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.125	0.125	0.750	8
IVH605	House Task	0.111	0.111	0.778	9
IVT600	Toy Task	0.111	0.111	0.778	9
SES		**low/high (SES 2)**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.111	0.000	0.889	9
IVH605	House Task	0.111	0.000	0.889	9
IVT600	Toy Task	0.125	0.000	0.875	8
SES		**low/low (SES 1)**			
Variable	**Task**	**oscillating**	**reflecting**	**certain**	**N**
IVP605	Plant Task	0.143	0.000	0.857	7
IVH605	House Task	0.286	0.000	0.714	7
IVT600	Toy Task	0.143	0.000	0.857	7

Table 176
Recognition
by seventeen-year-old children
Urban sample

Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.420	0.580	50

Table 177
Recognition
at age 17 by teacher rating
Urban sample

Teacher Rating	high			
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.457	0.543	35
Teacher Rating	**low**			
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.333	0.667	15

Table 178
Recognition
at age 17 by gender
Urban sample

Gender	male			
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.409	0.591	22
Gender	**female**			
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.429	0.571	28

Table 179
Recognition
at age 17 by social class in two categories: low (SES 1-3), high (SES 4-6)
Urban sample

SES	high			
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.355	0.645	31
SES	**low**			
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.526	0.474	19

Table 180
Recognition
at age 17 by social class in six categories
Urban sample

SES		high/high (SES 6)		
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.429	0.571	7
SES		**high/low (SES 5)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.417	0.583	12
SES		**middle/high (SES 4)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.250	0.750	12
SES		**middle/low (SES 3)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.571	0.429	7
SES		**low/high (SES 2)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.714	0.286	7
SES		**low/low (SES 1)**		
Variable	**Task**	**yes**	**no**	**N**
IVMEM6	Task Recognition	0.200	0.800	5

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