Dutch contribution
Framework for collecting data about pupils’ representations (for wp 4 & del A05)

The St. Jan School in Amsterdam
1. Subjects investigated

St. Janschool
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Pupils: Group 7 = 10-11 years old

21 pupils from the St. Janschool took part in the activities of Representation in June 1999. After drawing and writing six pupils were selected for interviews.

The St. Jan School is situated in the Western parts of Amsterdam in the middle of an early 20th century quarter. The school has 210 pupils divided over 10 groups. The ethnic background is diverse: 54 Moroccan pupils, 41 Surinam, 33 Turkish, 30 Dutch, and the rest of the pupils have 10 different nationalities. The school has 19 teachers, a janitor, a special needs co-ordinator (senco), an ICT-co-ordinator, and a responsible person for confirmation classes (catechist). Hardly any pupils repeat years. Although the system is based on frontal teaching, differentiation is paid attention to, both in classroom and via special programmes done by the senco.

The mission of the St. Jan School focuses on co-operation between pupils, and between the teacher and the pupils. The increase of self-confidence of the children and their progress in learning is realised by offering the right incentives of entering the proximal zones of development (Vygotsky), thus creating tailor-made education, within a clear structure and organisation. At the background lies the vision that children should be given enough ‘luggage’ to go on and to keep on developing themselves: ‘learning to learn’ and ‘life-long learning’ are the statements here. ICT is seen as part of the mission and vision: it should contribute to them.

The selected group 7 has 21 pupils. They have access to two Personal Computers in their classroom. These are used for educational software, both for drill & practice and remedial purposes, and for word processing. Right outside the classroom in the corridor are 15 Network Computers next to each other. The NC’s are primarily used for Internet-based communication or WWW-browsing, both for learning and for fun. Also word processing and courseware is used. In addition (Java)games are played.
2. Methodology / Description of the context / Observations

Group 7 has two female teachers. One of the teachers, teaching the group for about 1.5 days a week, is also the ICT-co-ordinator of the school (Antoinette Klaphake). The pupils had been told about the project by the other teacher (Femke de Groot) the day before. A letter for parents was provided with information about the project, and a request to be allowed to use image and text materials for the purposes of the project.

I had decided with the teacher to devote one whole morning to the activities (Friday-morning June 25, 1999). We had one preliminary meeting about 3 weeks before that. Via e-mail I sent the teacher a scenario with a rough time plan. On the Thursday-evening before we had a telephone-conversation to fine-tune the activities. The teacher had collected additional materials (books and pictures) to help the pupils when not knowing how to describe or draw computers. I explained that this would disturb the research.

At 08.30 hrs the school doors open; the lessons start at 08.45 hrs and stop at 12.00 hrs. By 08.40 most pupils were in the classroom. The classroom has five ‘islands’ of tables with 3 to 5 pupils sitting on them.

08.45: The teacher introduced me as a researcher interested in the activities of the pupils’ brains when working with a computer. I sat in the back of the classroom with a digital videocamera, with which also digital photographs can be made (both during recording and during playback). I took notes as well.

08.50: The teacher introduced the first part. Each pupil of the chosen class was asked to draw a computer and to write down the names of the different parts of the computer. As an example the teacher drew a telephone on the blackboard and demonstrated how to refer to the parts for example by writing the word ‘KEY’ and a connection-line. An other option was to make a legend.

A couple of pupils asked for clarification: “Which computer do I have to draw?”, “Do I have to draw the table on which it stands?”, “Can I draw the computer that I have at home?”, “What do I do when I don’t know how things are called?”, “Do I have to mention all the letters of the keys in the drawing?”. The teacher asserted that it was their impression, and that they could decide for themselves. If they did not know words, then they could use circumscriptions.

The teacher introduced already the next phase briefly, in which they would be asked to write about the theme: “What is for me the usefulness of a computer?”

08.55: When drawing the pupils have been sitting in their own classroom in which two PC’s are present in one corner. I observed that most of the pupils immediately took out their rulers, and started to draw with black pencils or felt-tips. Only after stating that they had to be copied, pupils started to make the drawings clearer, and more colourful. While they were drawing I walked around the classroom while filming. Because the large LCD screen, I could hold the camera as casual as possible. I observed one pupil
walking to the computers in the corner and starting to count the number of keys. 

**09.05:** The teacher said that they could start writing names for the parts of the computer. In addition they could continue drawing and colouring. I made photo’s of all the drawings-in-being, and showed the result to its makers.

**09.25:** Drawing and writing terms is concluded.

**Observations on the above period:**
The pupils have worked with quite some concentration, although differences occurred. Some girls were arguing frequently (by the end of the morning one of these girls was expelled). Pupils posed questions, also to me: “What’s its name again, compressor?” , “What’s the name of the thing that you type on?”. One girl asks: “Can I go to the corridor to see how the printer looks like?”. The teacher grants the request. Although cribbing off one’s neighbour is not allowed, it happens. Also pupils whisper with each other.

Although the computers on the paper have been drawn according to the pupils’ conceptions of a computer, these observations indicate that this activity produces only partly an adequate image of the individual representations.

**09.30:** Writing some lines on usefulness.
The teacher introduced the short text. The English sentence had been literally translated by me and sent to the teacher. The sentence appeared not to be clear enough (due to semantic differences with English: the translated word for usefulness is not a word very much used by children). This is why the teacher wrote three questions on the blackboard: “What can I do with a computer?”, “What is the usefulness of the computer for me?”, and “What good is it to me?”. This appeared to be confusing: some pupils started to answer every question separately. This may have led to an increase in the number of words used. The session was very quiet; everyone thought and wrote down. There was little cribbing.

END OF FIRST INDIVIDUAL SESSION (08.45-09.50)

**09.50:** The pupils are allowed to eat and drink something, followed by playing outside on the school’s playground. In the meantime the teacher and I selected six drawings. I had explained that the 6 should give a good representation of the group as a whole. We spoke of possible criterions, like gender, ethnic group, achievement. In the end the teacher also included difficulty with language and creativity. One issue was not taken into account: age. I assumed that all the children were 10-11, but due to repeating classes and other factors, 3 of the selected pupils have (recently) reached the age of 12. The teacher experienced the selection as quite difficult.

**10.15:** The pupils are back from the playground. On the selection of the drawings some pupils ask “Who won?”.

The collective work is introduced (**see section 4**) 

**10.45:** The actual work starts in the groups. I invite the 6 pupils whose drawings have been selected to the teacher room, one at the time.

**11.30:** I return in the classroom after having completed the 6 interviews. In the meantime the teacher has made some more video recordings.

**11.45:** Presentations of the seven collective efforts. After each presentation the group gives a loud applause!!

**June 30:** Together with the teacher I watch the video. We select some scenes that are characteristic for the atmosphere in the classroom. The teacher reads this report, but has no significant extra remarks. She does doubt now, however, whether she should not have selected other drawings than the ones she had.
### 3. Interview

Six pupils were interviewed for 8-10 minutes each. An interview scheme was used for notes. I made no recordings. I left the names unchanged.

<table>
<thead>
<tr>
<th>3.1. Interview 1: Shainaaz</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age:</strong> 12 years old</td>
</tr>
<tr>
<td><strong>Gender:</strong> F</td>
</tr>
<tr>
<td><strong>Nationality:</strong> Dutch; her parents are born in Surinam and belong to the Hindustani ethnic group</td>
</tr>
<tr>
<td><strong>Brothers and sisters:</strong> 2 brothers of 14 and 4, 1 sister of 9</td>
</tr>
<tr>
<td><strong>Parents:</strong> married. No clear picture of what parents do for a living</td>
</tr>
<tr>
<td><strong>Family situation:</strong> All six members of the family live together</td>
</tr>
<tr>
<td><strong>Hobbies:</strong></td>
</tr>
<tr>
<td>➢ Swimming (she mentions her awards),</td>
</tr>
<tr>
<td>➢ Singing</td>
</tr>
<tr>
<td>➢ Dancing</td>
</tr>
</tbody>
</table>

**Game consoles at home:**
Nintendo64 and SEGA; favourite games James Bond and a car race game.

**Use of computer at home**
The family of Shainaaz has a somewhat older PC with Windows 95. There is neither CD-ROM nor Internet-connection. Her father does not, but her mother does use the computer. Shainaaz uses the PC for typing her talks for school, and she plays games (Disney).

**Use of computer at school**
Shainaaz uses the network computer almost every day. Most of the time she searches for information on famous people, like R&B-artists. She also uses the computer for writing essays. The newspaper of the group has been made with the computer.
Shainaaz’s drawing

<table>
<thead>
<tr>
<th>Depicted parts</th>
<th>Texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor with buttons</td>
<td>“Screen”</td>
</tr>
<tr>
<td>Desk top computer with buttons, CD-ROM and diskette station</td>
<td>On Monitor pointing at buttons: “Dark Image or Light”, “High Low Screen”, “Screen to Left and Right”, “Loud Quiet”, “Off On”</td>
</tr>
<tr>
<td>Mouse and cable</td>
<td>“Keyboard” and on the keyboard two times “Enter”</td>
</tr>
<tr>
<td>Mousepad</td>
<td>“The Mouse”</td>
</tr>
</tbody>
</table>
**General description**

A4 drawing made with pencil, later coloured with pencils. She used a ruler. The computer is presented frontally, no perspective at all. It is a desk top computer with a large monitor on it. The screen is with icons as on the school’s network computer. Keyboard; mouse on pad plus cable.

Comments on the drawing

Shainaaz obviously had the NC in her mind when drawing. The icons on the screen are the ones on an NC. Remarkable are the many buttons with text. No internal parts are described. The mouse-cable is the only cable. Green is the dominating colour. Only the mouse pad is blue, and little lights on the on/off switch are red.

**Shainaaz’s text: “What is to me the usefulness of a computer”**

Words: 45

Sentences: 2 (long)

Nouns: computer, things, animals, people, information

Adjectives: famous, fun, supergreat

Verbs: can, internetting, search, go, find

Main argument: “With a computer I can go to famous people, that is what I find supergreat.”

**Comments on the text**

Shainaaz is completely focussed on the use of Internet for finding information. She writes enthusiastically in superlatives.

She is clearly depicting the computer as a personal tool.
### 3.2. Interview 2: Nadine

**Age:** 11 years old  
**Gender:** F  
**Nationality:** Born in the Netherlands, double nationality: English/Irish  
**Brothers and sisters:** 1 sister of 2,5 year  
**Parents:** Married. Irish father has a studio for musicians. English mother works in a canteen.  
**Family situation:** Nadine lives with father, mother and sister.  
**Hobbies:**  
- skeeler  
- swimming  
- internetting  

**Game consoles:**  
- SuperNintendo at her father’s work  
- No game console at home

#### Use of computer at home  
Nadine uses the modern PC every day. Mostly it is for games. Also she likes to print things, like images. The computer is connected to scanner and there is a digital camera. These images are printed often as well. There is a modem in the computer, but no Internet connection yet.  
Nadine: “My mother cannot decide what to take for Internet: the cable or telephone”. Both father and mother like to use the computer for image processing.

#### Use of computer at school  
Nadine uses the computers at school a lot. Often she stays late after the lessons and together with a girlfriend they ‘Internet’. Also she writes essays for school. Nadine considers herself above average with regard to her interest in computers.

#### Use of computer in other/special places  
Nadine uses the computer in the public library especially for chatting. She mentions a site called “Hello You”, tells her password to me, and her impersonations. Nadine: “Everyone has a nickname, and I choose other names all the time; the last time I called myself ‘LEFTEYE’ and there this boy who called himself “CHOCOLATE BOY”

Remark: the nicknames are in English, not in Dutch.
### Nadine's drawing

<table>
<thead>
<tr>
<th>Depicted parts</th>
<th>Texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Screen”, many icons, buttons</td>
<td>“Screen”</td>
</tr>
<tr>
<td>“Keyboard”</td>
<td>“Interenet”</td>
</tr>
<tr>
<td>Two “Speakerboxes’</td>
<td>“Work”, “Start”</td>
</tr>
<tr>
<td>Minitower</td>
<td>“Mic” 2 times, “Box” 2 times</td>
</tr>
<tr>
<td>Microphone</td>
<td>“Bass”, “Sound” 2 times</td>
</tr>
<tr>
<td>Mouse</td>
<td>“Mouse”, “Keyboard”</td>
</tr>
<tr>
<td>Teddy bear</td>
<td>“Monitor”</td>
</tr>
<tr>
<td></td>
<td>“Disc CD Recorder”</td>
</tr>
<tr>
<td></td>
<td>“Disc”</td>
</tr>
</tbody>
</table>

### General description

A4 drawing in pencil, and coloured with felt tips. Ballpoint for texts in legend. Frontal presentation of a computer consisting of a screen with the word PC on it, and 13 icons, the word start and the word Interenet. Buttons without names. Keyboard well specified (but wrong) with function keys. Curly cable to monitor. The midi tower is called ‘monitor’, and has two cd-drives. One she calls ‘Richter’, an unknown Dutch word. She means recorder (?). Two sound boxes, one with separate volume and bass knobs. The other box she calls ‘Box Mic’. A separate microphone connected with a curly cable to the monitor (screen). The mouse is done in black fat felt tip and has a straight cable to the keyboard. In front of the keyboard is the mouse pad (?) with a teddy bear lying on it.

### Comments on the drawing

Nadine had the PC at home in her head when drawing. There is a lot of detail.
Nadine’s text: “What is to me the usefulness of a computer”
Words: 84
Sentences: 12 (some very short)
Nouns: computer, school talk, games, fun, arithmetic, language, school, letter, handwriting, teacher, persons, essay
Adjectives: more, better, own, new
Verbs: Internetting, do, type out, learn, play, type, know, chat, find, make
Main argument: “If the teacher does not know it, you can find out on the computer”

Comments on the text
Nadine writes a long text, dealing with many issues: for essay, for learning, for arithmetic, for language, to make a letter look better, for replacing the teacher, for finding, for chatting, finding persons.
### 3.3. Interview 3: Mounir

**Age:** 10 years old  
**Gender:** M  
**Nationality:** Dutch, born here, parents from Morocco  
**Brothers and sisters:** 2 brothers of 12 and 6 years old  
**Parents:** Married; employment not clear  
**Family situation:** Mounir lives with father, mother and the 2 brothers  

**Hobbies:**  
- football (Ajax!)  
- dancing  

**Game consoles at home:**  
- Super Nintendo on which he plays SuperSoccer and Mario

**Use of computer at home**  
Mounir and his family do not have a computer at home. But he says: "We are going to buy one."

**Use of computer at school**  
Mounir uses the computer a couple of times a week, mostly for Internet. He then visits Soccernet ([www.soccernet.com](http://www.soccernet.com)). He likes to look for Moroccan players who play in all kinds of countries, and also in the Netherlands. He mentions the photo’s he finds and the e-mail he writes to the players.  
Also he plays games on the computer (and of course it is football that is his favourite). For the rest Mounir mentions the word processor for making school talks.

**Use of computer in other/special places**  
The only thing Mounir mentions is the library in which he uses the computer to find books for his school talks.

Mounir considers himself as an average user of the computer, compared with his fellow pupils.
Mounir’s drawing

**Depicted parts**
- Screen with “Soccernet” and “www.soccernet.com”
- Two boxes
- Keyboard
- Miditower
- Mouse plus pad
- Plugs
- A lot of wires/cables
- Lamp

**Texts**
- “Computer Research”
- “Processor”
- “Box” x 2
- “Screen”
- “Keyboard”
- “Mouse” “Pad”
- “Lamp”
- “Plug”, “Wires”

**General description**
A4 drawing made with pencil later coloured in. The computer and the lamp hang in the air. On the screen is the favourite Website, with address. It is the only drawing in which electricity plugs are drawn and mentioned. The keyboard is detailed, but no characters. Mounir draws a lot of wires and cables. Only the miditower and the lamp are not connected. On top of the drawing Mounir wrote Computer Research.

**Comments on the drawing**
This is a drawing in which the representation is produced without a clear example in mind. Mounir does not have a computer at home, and the network computer do look different from what he picture. Also the lamp suggests that he draws not from a concrete example.
Mounir’s text: “What is to me the usefulness of a computer”
Words: 74
Sentences: 8
Nouns: computer, information, school talk, paper, fan, photo, Hadji, game, arithmetic, traffic, drawing
Adjectives: fun, many, fast
Verbs: email, get, talk, play, draw, type, fast-type, blind-type
Main argument: “You can e-mail to your fan (Mounir means the football player), you can talk with him (her) (this suggests that he not only thinks of football players). For me it is great fun, you can get a photograph of someone e.g. Hadji.”

Comments on the text
Mounir is a real football fan, with Ajax and Moroccan players as favourites. The text is quite detailed: many uses of the computer are indicated.
### 3.4. Interview 4: Patrick

**Age:** 11 years old  
**Gender:** M  
**Nationality:** Dutch, parents are Dutch as well  
**Brothers and sisters:** one sister of 17  
**Parents:** Mother is housewife, father is in security (largest hospital of Amsterdam).  
**Family situation:** Patrick lives together with father, mother and sister.  

**Hobbies:**
- Korfball (he plays with one of the more famous clubs in Amsterdam: Blue-White)  
- Computer  
- Television  
- Play with a friend  

**Game consoles at home:**
- Many many game computers  
- Play Station  
- Game Boy  
- SEGA  

He plays GTA, Tikan2, Micro’s Machine V3  

**Use of computer at home**
Patrick has a PC with Windows95 that he uses ‘real often’: every day in between 5 minutes and 3 hours. Mostly he does games like FIFA98 or Aladdin. Also he likes to type: he writes stories and about things he has experienced, e.g. “when I am in love”. These stories he never shows to anyone else. The other family members do not use the computer very often, so he is not afraid that they will find the stories. He has his own private folder.  

Patrick uses the computer at home also for some educational purposes: words he has to learn, preparation for school talks.  

There is a modem in the computer, but his parents do not want an Internet-account, because it is too expensive.  

**Use of computer at school**
Patrick uses the computers at school 3 to 4 times a week, mostly for browsing the Web (he mentions the Ajax-site, and the NBA-site). Also the computer is used for word processing. He mentions the group’s newspaper that is made with help of the computer.  

**Use of computer in other/special places**
If Patrick is with friends they often play with the computer. Also he uses the computer in the library to look for books that can help him to make papers or talks.
### Patrick's drawing

<table>
<thead>
<tr>
<th>Depicted parts</th>
<th>Texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen with his name written on it and folders</td>
<td>“File, Folders and Private Folder”</td>
</tr>
<tr>
<td>Desk top computer with buttons, CD-ROM, and diskette station.</td>
<td>“CD player”</td>
</tr>
<tr>
<td>Wires</td>
<td>“Flopie” (means Floppy)</td>
</tr>
<tr>
<td>On the monitor: “IMB”</td>
<td>On the monitor: “IMB”</td>
</tr>
<tr>
<td>On the desktop-computer: “Power” and “Turbo” (and an unknown word: something like “Fader”: maybe the brand of the computer.)</td>
<td>On the desktop-computer: “Power” and “Turbo” (and an unknown word: something like “Fader”: maybe the brand of the computer.)</td>
</tr>
</tbody>
</table>

### General description
A4 drawing in pencil, some black felt tip, two blue lines under his name. Folders and icons on the screen. Control buttons on the monitor: left/right (2 times), up/down. Patrick started to make a legend, but 3 was enough (of the 6 he had made).

### Comments on the drawing
This drawing is not like the other ones. It is large, and shows only monitor/screen and
the system’s housing. Large wires and cables, with connectors are hanging below. There is no keyboard or other auxiliary equipment. The screen is a mix of the computer at home and some elements of the NC: ICA (Interactive Client Access) is the protocol used for the Java Stations to connect to the Windows Terminal Server. The icon of the trash is a fish. He draws two folders for himself: “Patrick” and “Patrick Private”. There is one word on the drawing that I can’t read and I have forgotten to ask him.

<table>
<thead>
<tr>
<th>Patrick's text: “What is to me the usefulness of a computer”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Words: 44</td>
</tr>
<tr>
<td>Sentences: some sentences, plus summing up of possibilities</td>
</tr>
<tr>
<td>Nouns: computer, games, basketball, information</td>
</tr>
<tr>
<td>Adjectives: -</td>
</tr>
<tr>
<td>Verbs: Internetting, write, type, know, have, know, do you good</td>
</tr>
<tr>
<td>Main argument: “It can do you good, because you can have the information or know something.”</td>
</tr>
</tbody>
</table>

**Comments on the text**
The text is very bad, full of spelling mistakes, and illogical sentences.
3.5. Interview 5: Hardaman

Age: 12 years old  
Gender: M  
Nationality: Dutch, born here, parents both from India  
Brothers and sisters: 1 sister of 2 years  
Parents: His father packages flowers, his mother is a housewife.  
Family situation: Hardaman lives together with parents and sister.  
Hobbies:  
➢ Basketball  
➢ Football  
➢ Computering

Game consoles at home:  
No: “I used to have one but now it is broke”

Use of computer at home  
Hardaman does not have a computer at home. “I will get one later”

Use of computer at school  
He uses the computer one or two times a week. Mostly it is for finding information on the WWW, or for fun. He mentions NBA (National Basketball Association: an American site). Also the computer is used for writing essays.

Use of computer in other/special places  
Hardaman goes to his cousins three to four times a week, and there he plays games, or makes drawings on the computer. Also he visits the community centre in the neighbourhood, where he gets lessons on the computer.  
Hardaman considers himself certainly not a computer fanatic.
### Hardaman’s drawing

![Hardaman’s drawing image]

<table>
<thead>
<tr>
<th>Depicted parts</th>
<th>Texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen with “NBA LIVE” (a part of the NBA-site). The web address is written as well</td>
<td>“Screen” “NBA LIVE” “www.nba.com”</td>
</tr>
<tr>
<td>2 loudspeakers plus cables</td>
<td>“Soundbox”</td>
</tr>
<tr>
<td>Mouse and cable and mouse pad</td>
<td>“Mouse”</td>
</tr>
<tr>
<td>Keyboard and cable</td>
<td>“Keyboard”</td>
</tr>
<tr>
<td>Mini tower system housing with buttons and CD-ROM drive</td>
<td>“Processor”</td>
</tr>
<tr>
<td>“Processor”</td>
<td>“CD-ROM”</td>
</tr>
</tbody>
</table>

### General description

A4 drawing in black pencil nicely coloured. It is a small drawing with a legend.

### Comments on the drawing

I looked for the NBA site: it is very full of English text. The screen as he drew it I could not find: it seems fantasy.
Hardaman’s text: “What is to me the usefulness of a computer”
Words: 50
Sentences: 3 (one is the repetition of the question)
Nouns: computer, teacher, school, information
Adjectives: handy
Verbs: internetting, write, email, search, know
Main argument: “It is handy that there are computers at school, because when the teacher does not know something, then you can look it up.”

Comments on the text
Hardaman is not very interested in computers; he sums up quite some issues that he thinks are useful, though
### 3.6. Interview 6: Pabietra

**Age:** 12 years (recently)  
**Gender:** F  
**Nationality:** Dutch; parents are Hindustani from Surinam  
**Brothers and sisters:** a sister of 21 and two brothers of 9 and 5 years old  
**Parents:** Father is an estate agent. Mother is ‘nothing’  
**Family situation:** The 6 persons live together in a house  
**Hobbies:**  
- television (especially Hindustani movies)  
- playing outside  
- computing  

**Game consoles:** none

**Use of computer at home**  
The PC at home is used for games (Charlie the Duck), for typing and for looking at images. It is not frequently used, by neither of the family members. No CD-ROM no Internet.

**Use of computer at school**  
Pabietra stays late at school after the lessons have ended. “Half an hour a couple of times a week”. The two PC’s in classroom are used for practiseing.

**Use of computer in other/special places**  
Nowhere
**Pabietra's drawing**

![Image of Pabietra's drawing]

<table>
<thead>
<tr>
<th>Depicted parts</th>
<th>Texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Screen, on/off button, logo (IMB)</td>
<td>➢ Screen</td>
</tr>
<tr>
<td>➢ Keyboard (but no keys)</td>
<td>➢ Keyboard</td>
</tr>
<tr>
<td>➢ Mousepad and mouse + cable</td>
<td>➢ Mouse, Mouse Pad (both written in English)</td>
</tr>
<tr>
<td>➢ Mini tower computer with ‘POWER’-button</td>
<td>➢ Processor, Power</td>
</tr>
<tr>
<td>➢ Printer with button</td>
<td>➢ Printer, Paper, Paper Holder, Ink</td>
</tr>
<tr>
<td>➢ Computer desk</td>
<td>➢ reservoir, On/Off button</td>
</tr>
<tr>
<td></td>
<td>➢ Computer Table</td>
</tr>
</tbody>
</table>

**General description**

A4 drawing in black pencil and some parts coloured. The computer is on a ‘computer table’ drawn in perspective.

**Comments on the drawing**

Pabietra is the only one who draws a printer with quite some detail and names attached. There are no cables, except one really fat one for the mouse.
Pabietra’s text: “What is to me the usefulness of a computer”
Words: 39 (answers), 19 (repetition of the three questions on the blackboard)
Sentences: 3 (and 3 for the questions)
Nouns: games, information, schooltalk, internet, pleasure, things, computer
Adjectives: a lot, gladly
Verbs: write, internetting, e-mail, look up, enjoy, find, see
Main argument: “With Internet you can enjoy a lot, you can find information”

Comments on the text
With Pabietra the confusion of the three questions on the blackboard influenced her text.

The blackboard was used for the pupils' brainstorm. In the middle: “The computer in the future”.

Introduction of collective work
The teacher introduced the collective work on the theme: “What might computers bring in the future?” She used the same metaphor of the telephone, saying that people many years ago could not imagine what would be possible now. On the blackboard she wrote down in a circle “The Computer in the Future” and asked for input from the group.

Brainstorm
A very lively interaction was the result. First most of the reactions were referring to function, later, also because of the teacher invitation to do this, more form issues were touched upon. Fantasies started to be aired, like the computer that can do ‘everything’, to animal shapes (transform to any colour and any form), the computer that does the homework for school, etc. Almost everyone took part; many fingers were in the air to ask for a turn to speak.

Themes
In the end 5 themes were derived:
• The “do”-computer
• The “fly”-computer
• The Robot
• The Advisor
• Fashion/the wardrobe
The additional categories ‘Pocketcomputer’ and ‘Handcomputer’ were left to be included in either one of the other themes.
Collective work
The teacher asked the pupils to form 7 groups of 3 pupils themselves, and distributed the themes over the groups. Some themes were given to more than one group. All members took part, except the six pupils that were taken from the groups for a short time to be interviewed by me.

Presentations
Three pupils from each group presented a drawing and a story in front of the rest of the class.
### 4.1. Group A: The Fashion-Professor

<table>
<thead>
<tr>
<th>Drawing</th>
<th>A3 drawing in coloured felt tip and coloured pencil. It is a closet with clothes hanging in it, a wardrobe. The left side shows a screen with numbers and a skirt and blouse; the right side shows a human face saying ‘Hallo!’ while the antennas and the current between them indicate that it is a robot.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>“Fashion - Professor”.</td>
</tr>
<tr>
<td>Story (edited)</td>
<td>In the wardrobe is a fashion-professor. You have to type in a code first. Then the F-P emerges in the wardrobe. Then the F-P becomes a screen. On that screen comes clothes and then you click on the clothes that you want to wear. He says whether the combination looks nice. If the F-P says that the combination fits well with you, the clothes come out of the wardrobe. He can also design clothes for you. He is 33 years old and 62 centimetres tall. The group consists of three girls.</td>
</tr>
</tbody>
</table>
4.2. Group B: The Hippie Wardrobe

**Drawing**
A3 drawing in colours. A wardrobe.

**Text**
Hippie Wardrobe.

**Story (edited)**
This is a mysterious wardrobe, full of clothes, and full of secret things. On the cat’s head is a remote control. If you push the orange button then it opens, and if you push the green one, then he comes towards you. If you want to close it again, you have to push the red one. You can also talk to the cat’s head. If you push the blue button you can choose clothes. For the rest it is a beautiful wardrobe and it’s name is Hippie Wardrobe.

Shainaaz was in this group, together with two other girls.
4.3. Group C: The Chameleon

**Drawing**
A3 drawing in coloured felt tip.

**Text**
Flubber-Puter.
Man’s Best Friend! In de Future!

**Story (edited)**
The Flubber-Puter is a small computer that can change its form. He is helpful and nice and he can talk and dance. He is thus a sort of chameleon. He is created by Gio, Mounir and Prashant.

Mounir was in this group, with two other boys.
4.4. Group D: The SDS Vehicle

**Drawing**
A3 drawing in colours. It is not clear what it exactly represents: some humanoid with magic symbols, girl/witch, rocket?

**Text:** None.

**Story (edited)**
The SDS is a special vehicle. SDS means Simone, Demet, Sabine vehicle. It wears a splendid fruit-like sweater. She is twelve years old and a very sweet girl. She is 3 meters and 80 centimeters. If you ask her something she does it immediately. She can transform in everything, like car, boat, helicopter. The SDS vehicle has many advantages, such as “No paying for a ticket”, “Faster than normal vehicles”, “And in the plane the food is made very nice”.
If she is mad, do not make jokes. The colour of her skin is light brown. Her hair is bordeaux-red (wine-red), and she has nice bangs, and she has nice ribbons in her hair. And her special characteristics: she has a beautiful wink on her face to prove that she is sweet.

**Remark** Upon my asking whether this was a computer they said yes, but it was a bit alive.
The group consisted of three girls.
4.5. Group E: The computer as an advisor/counsellor

Drawing
A3 drawing in colours. A girl named Lefteye with a keyboard on her cheek, a chair and a table on which is a screen (computer?) and a lamp, and a boy with a Nike-cap, saying "I have a problem", with a paper in his hand with the words "An unsatisfactory mark". The boy is called Ginuwine.

Text
The counsellor

Story (edited)
We have made an advising computer. If you have problems you have to type in your problem on her cheek. From her mouth she gives advice. She is 16 years old, is 4 meters tall, 75 centimetres wide. She has long hair with different colours. We also made a boy who wants to get advice. He has a problem with his homework; here is his desk where he makes his homework.

Remark
Lefteye is the name that Nadine mentioned as alias during chatting. Nadine is not in this group. The group consisted of three girls.
## 4.6. Group F: The Robot-computer

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>No text, except the word “printer” on the lower part of the ‘Body’ of the robot.</td>
</tr>
<tr>
<td>Story (edited)</td>
<td>The robot that we made is crooked, big belly, big head, short legs, and the one hand is thin and the other is thick, and he has two antennas on his head. And he has two wings. And it is a boy, and it is called JR. He does what we say. He helps with making home work, shopping, and cleaning the house. And we have a code to avoid coming in the security of the robot and the code is HPL. And he is 2 meters tall, and it is drawn by Luther, Patrick and Hardaman. (HPL…)</td>
</tr>
<tr>
<td>Remark</td>
<td>Patrick and Hardaman are in this group, plus one other boy.</td>
</tr>
</tbody>
</table>
### 4.7. Group G: The computer as a flying robot

<table>
<thead>
<tr>
<th>Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3 drawing in colours. A girl flying through the air, birds surrounding her. Sun in right upper corner, blue clouds. On each of the wings the word Hawai</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>No text</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Story (edited)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is Miss Hawai, and today she flies to Hawai, this is why she wears this beautiful costume. If she goes to another country, she will get an other costume. On top of her people can sit. You do not have to have a ticket; you just put your PIN-pass in here and it is automatically paid. She has nice flowers, and her lips kiss all other flying robots. It can transform into other shapes, and it is a little bit alive.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nadine and Pabietra are part of this group, plus one other girl</td>
</tr>
</tbody>
</table>
5.0 The Teacher’s criterions for achievement of the six pupils

<table>
<thead>
<tr>
<th></th>
<th>School</th>
<th>Drawing</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shainaaz</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Nadine</td>
<td>Med</td>
<td>Hi</td>
<td>Med</td>
</tr>
<tr>
<td>Mounir</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Patrick</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
</tr>
<tr>
<td>Hardaman</td>
<td>Hi</td>
<td>Hi</td>
<td>Hi</td>
</tr>
<tr>
<td>Pabietra</td>
<td>Med</td>
<td>Hi</td>
<td>Hi</td>
</tr>
</tbody>
</table>