

Spanish (Catalan) contribution

The Avenç School

Barcelona

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Framework for collecting data about pupils' representations (for wp 4 & del A05)

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1. Subjects investigated

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Pupils: Primary 5 = 10–11 years old

The Avenç School is an urban primary school in a typical middle–class neighbourhood in Barcelona. The total number of pupils is 430. The school has 50 teachers –three of them acting at the same time as headteacher, secretary and assistant headteacher–, and 18 classes plus 6 of preschool education. 10% of the pupils are considered to be pupils with special education needs but they are integrated in the normal classes with their corresponding age counterparts.

Most children are native Catalan speakers. Their parents belong to the urban middle class, being most of them professionals or small firm’s owners, mainly in the services sector or in city commerce. Less than 5% of the pupils’ parents were born outside Catalonia and only 1% abroad. As usual, the majority of the families live in the neighbourhood.

The school is a co–operative initiative, owned by parents and teachers, and fully backed by the government, who pays all the running costs –including teachers salaries– and a percentage of the rest. The educational mission, as stated in the school’s educational charter, is to take full advantage of all individual capabilities while promoting social responsibility. Pupils are expected to be active agents in the process of their education and to interact with each other in order to get a collaborative learning environment. The school adheres to a constructivist approach to education.

A lot of emphasis is placed on the educational applications of ICT. Pupils are introduced to computers in the first class. However, the school complains that because of the lack of resources computers are not as present in school life as they should be. There are currently two dedicated ICT classrooms. The school was connected to the internet two years ago by the government (PIE), but they acknowledge that only e–mail facilities are used –and exclusively by the older pupils and by teachers, of course.

The teacher responsible for this class is also the ICT coordinator at the school. However, the teacher of the selected class has never been involved in a real ICT project together with the pupils. As already stated, the selected pupils have to move to a dedicated computer classroom whenever they are expected to use computers. There are only three classes with computers inside the classroom –the ones corresponding to the older pupils. The selected pupils have had only a very introductory session to the internet during this academic year, but as a matter of fact they haven’t used it. These pupils tend to use the ICT classrooms for exercises in maths and language, as well as

for game-playing with edutainment software, always under the supervision of the ICT co-ordinator.

This has been the first time when these pupils have been asked to reflect their views and representations regarding ICT.

2. Methodology

Permission was obtained from the school council to ask pupils to participate in this project. The ICT co-ordinator, who is at the same time the teacher responsible for the selected class, was informed about REPRESENTATION some six months ago. One week before the activities, she was trained by the researcher following the guidelines.

The day of the activities, the researcher attended the morning session and was introduced as a colleague teacher interested in learning more about pupils' views about ICT. During the morning session, the researcher acted in fact as a teacher assistant, helping the teacher to carry out the normal activities in maths, social sciences and language. After the morning break, the teacher asked every pupil to draw a computer and to write the names of the different parts of the computer supplied with a short text on the theme: "What is for me the usefulness of a computer?". This activity was carried out during one hour and a half. It is important to take into account that there are no computers in the classroom.

In the afternoon session six pupils were selected for an interview with the researcher. While the selected pupils were interviewed one by one in another classroom the class teacher introduced a collective work on the issue: "What might computers bring in the future?". The afternoon session lasted for two hours, as usual.

The teacher accepted the guidelines provided by REPRESENTATION. She was asked to participate in the analysis of the pupils' drawings and texts and her contributions proved to be invaluable. It is important to mention the fact that after the first hour of acting like a teacher assistant the researcher was seen more as a part of the class than as a foreigner. The interviews were audio-recorded. The discussion was video-recorded by the teacher.

3. Interviews

Six pupils were interviewed for 30 minutes each. An interview scheme were used for notes combined with a tape-recorder. Pupils appear with their real names.

3.1. Interview 1: Ferran

Age: 10 years old

Gender: M

Nationality: Spanish (native Catalan speaker)

Brothers and sisters: none

Parents: Father = accountant. Mother = butcher.

Family situation: Ferran lives with both parents.

Hobbies: football, sports in general.

Game consoles at home: Playstation

Use of computer at home

His father has got a computer since Ferran was born. Currently, it is a notebook. Ferran does his homework at the same place where his father's computer is placed. But he knows he can only use the computer in his father's presence. He only plays his father's games on the computer, because he has got his own console. Sometimes, his father instructs him on the basics of Windows 98. He has even written to his friends using Word, and with the assistance of his father he has created a database where he stocks their addresses.

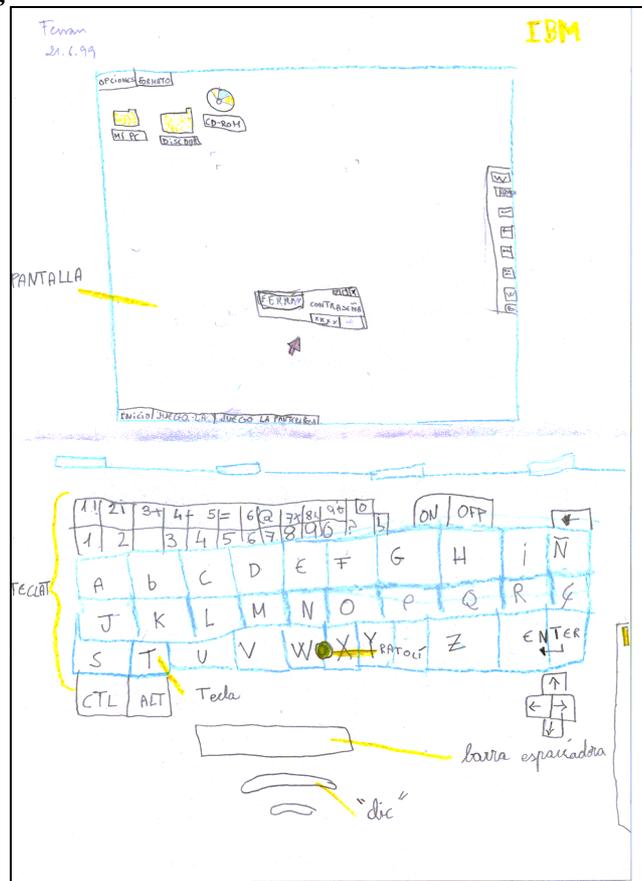
Use of computer at school

Ferran has used the computer at school for writing, arithmetic and drawing. He seriously thinks of computers as powerful tools which help people to perform boring tasks, mainly calculations.

Ferran: My father says that without the computer he would have to work even three times more and see me less.

He thinks that he knows almost everything about the computer and Windows 98. He does even know that there is a Windows 2000 to come. When the teacher cannot help a pupil in trouble in the computer classroom he is always willing to assist. He thinks that he is recognised as an expert by the rest of the class. A month ago, he even helped the teacher when he noticed that the monitor was not connected to the CPU.

Ferran's drawing



Depicted parts

- Screen
- Keyboard (it is a notebook), including function keys
- Toshiba's pointing device
- CD-Rom bay (with a yellow light)

Texts

- "Screen"
- "Key"
- "Spacebar"
- "Keyboard"
- "Mouse"
- "IBM"

General description

A4 drawing in blue, yellow and black. A notebook seen as from the user, consisting of a screen and a keyboard with a CD–Rom bay (not mentioned in the texts). The screen presents the Windows password and the pointing device, as well as the usual icons from the startup screen.

Comments on the drawing

Ferran says that he has depicted his father’s notebook. It is the only case in which a notebook has been taken as a model. It is also the only case in which such a detail regarding Windows 98 is presented, along with the MS Office bar. Details on the keyboard are also unusual. Interestingly enough, his father’s notebook is a Toshiba (the use of the blue colour would substitute the traditional light grey in the hardware), but he has placed the IBM brandname on top of the screen. School’s computers are IBM. Another curious detail is the fact that two games seem to be hidden (they are minimised in the main bar). One of them is the Pink Panther.

A mistake is made on the upper left part of the screen where the mentions to “Options” and “Format” seem to correspond to a program and cannot be seen on the startup screen.

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

Words: 49

Sentences: 2 (long)

Nouns: *computer, calculations, mathematics, work, windows and software*

Adjectives: *good, better, useful, and difficult*

Verbs: *think, calculate, work, help, assist, playing games, understand*

Main argument: “The computer is a powerful tool to help us a to perform difficult tasks but it is not easy to understand its functioning.”

Comments on the text

Ferran seems to be strongly influenced by his father’s views. Although he can accept that computers can be used to play games –such as the Pink Panther–, they should be used primarily to help (adult) people in performing difficult tasks. Since they are designed for serious work it is easy to understand why it is necessary to learn some important clues and tips which have not been taught at school.

3.2. Interview 2: Enric

Age: 11 years old

Gender: M

Nationality: Spanish (native Catalan speaker)

Brothers and sisters: one little sister

Parents: Father = university professor. Mother = university professor.

Family situation: Enric lives with his parents and sister.

Hobbies:

- football
- computer games
- reading
- pets
- modern music

Game consoles:

- No. He would like to have one, but his parents do say to him that a computer is enough and far better.

Use of computer at home

Enric's house seems to be full of computers. He has always seen computers at home. Presently, he has got his own but has to share it with his sister. His parents have a notebook each, plus another one at the place where they go for the weekends. They use the computer mainly for word-processing and encourage him to do his homework with the computer.

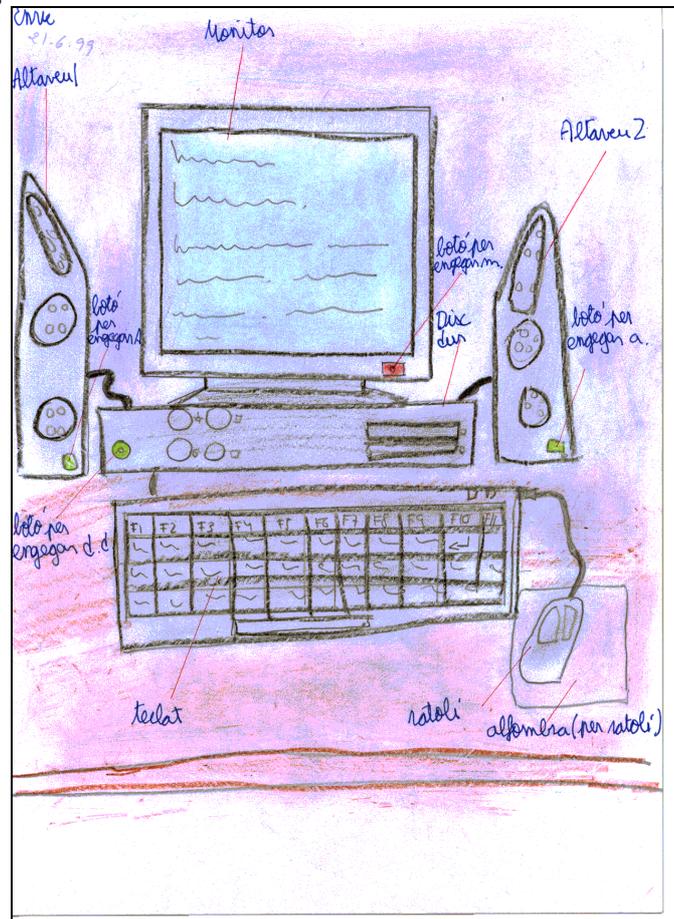
During the last two years he has been using Word and Powerpoint (for drawings) for preparing his homework. During the last year he has been used to the Internet for finding information for his homework and tips and demos of games.

He has got a variety of games and exchanges titles with other classmates. The last ones he has got are SimCity and Railroad Tycoon. The one he likes the most is FIFA 98.

Use of computer at school

Enric has used computer at school for writing stories and for Catalan, English and mathematics. But he uses more the computer at home even for serious purposes. He complains about the fact that computers are of little use at school because the hardware is old and the software is inappropriate. He strongly advocates for using the computer as a learning device.

Enric believes that every pupil should have his own e-mail account but he didn't know that the school was connected to the internet.

Enric's drawing**Depicted parts**

- Screen
- Keyboard with cable
- Mousepad and mouse + cable
- CPU with CD–Rom and floppy disc bays, and on/off buttons
- Loudspeakers with cable

Texts

- “Screen”
- “Hard disk”
- “On/off button” for CPU, screen and loudspeakers
- “Mouse” and “mouse pad”
- “Keyboard”
- “Loudspeaker” and “Loudspeaker 2”
- “Microphone”

General description

A4 drawing mainly in black and white, with buttons in red and green, and the screen in blue. A frontal presentation of a computer consisting of a screen with on/off button, a CPU, a keyboard and a mouse. Some of the parts are provided with cables.

Comments on the drawing

Enric's drawing is the most detailed technically of all drawings. It presents the computer as a multimedia device with a number of components (each with its own on/off button). The screen shows text only. The whole appearance of the drawing insists in the creation of a serious, work-oriented environment.

Enric's text: "What is to me the usefulness of a computer"

Words: 53

Sentences: 3

Nouns: *computer, work, Internet, e-mail, words, information*

Adjectives: *fun, useful, connected*

Verbs: *play, work, write, use Internet, research, help, enjoy*

Main argument: "The computer is a useful machine which can help to investigate and work, while at the same time enjoy your time. Unfortunately, little use is made at school."

Comments on the text

Enric is focusing on possibilities of research-oriented work and communication which lie on computers. He would like to communicate with other children from around the world using the e-mail. However, he thinks that the school does not use computers in a wise manner.

Enric: I will organise the schoolwork differently: more computer and internet, less books.

He also recognises the possibilities for game-playing, although he thinks that consoles are far better for these purposes.

3.3. Interview 3: Joan

Age: 10 years old

Gender: M

Nationality: Spanish (native Catalan speaker)

Brothers and sisters: one little sister of 8.

Parents: Work together at the family supermarket.

Family situation: Joan lives together with his parents and sister.

Hobbies:

- football
- sports

Game consoles at home:

- Nintendo
- Playstation

Use of computer at home

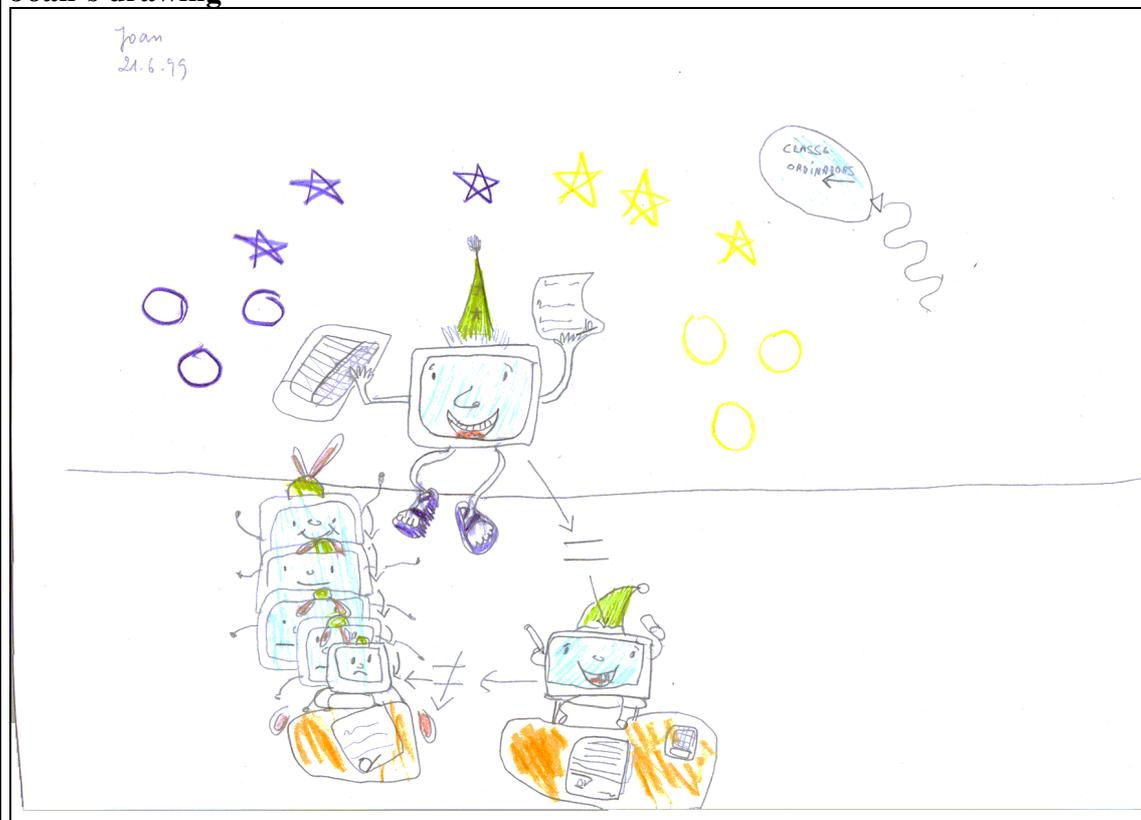
Joan does not have a computer at home. However, he knows that at the supermarket – owned by his grandfather and where his parents work– there is a computer used to deal with money matters. He would like to have a computer because he thinks that it would become a friend.

Use of computer at school

Joan has used computer at school for writing in Catalan and in English and arithmetic. He thinks that computers provided funny ways of learning. He likes educational software for learning maths which rewards him with lights and sounds (he is very good at maths).

Joan: *It is far better than last year's teacher. She was too strict.*

Besides, he likes very much to play with computer games at school.

Joan's drawing**Depicted parts**

- A computer as a teacher.
- Two computers as pupils, who are getting their final marks in maths.
- Only screens with hands and legs.
- A balloon.

Texts

- "Computer classroom"

General description

A4 drawing in colours. At the top of the drawing a balloon indicates that it is the computer classroom. Three computers are shown. The one in the middle is the computer teacher who is happy (*he always is happy*, says Joan). The other two are computer pupils getting their marks – one is happy, the other is sad because of the results obtained. Some mathematical signs suggest that the teacher identifies himself more with the computer getting good marks.

Comments on the drawing

Joan says that he does not know the parts of a computer, but during the interview he is able to identify some of them. He preferred to depict computers as living beings who have a soul and which are happy or sad when each pupil gets his corresponding marks. They seem to have a funny life in the computer classroom, especially when they are left alone.

Joan's text: "What is to me the usefulness of a computer"

Words: 32

Sentences: 2

Nouns: *computers, maths, friends*

Adjectives: *funny, happy, sad*

Verbs: *play, enjoy, learn*

Main argument: "It is fun to learn with computers because they are our friends."

Comments on the text

Joan argues that computers are pupils' mates. They are not only helpful in assisting learning, but also share with every pupil the responsibility over the results. His drawing depicts life in the computer classroom after the school is closed.

Joan: *It is the same as with Toy Story, you know.*

They are especially useful in helping to learn maths.

3.4. Interview 4: Anna

Age: 10 years old

Gender: F

Nationality: Spanish (native Catalan speaker)

Brothers and sisters: None.

Parents: Father: lawyer. Mother: housewife.

Family situation: Anna lives together with her parents.

Hobbies:

- Gym
- Animals
- Drawing

Game consoles at home:

- Playstation

Use of computer at home

Anna does not have any computer at home. She has seen some at his father's office but he does not have any at home.

Use of computer at school

Anna has been using the computer at school in the context of a remedial program. She has been improving her maths abilities by means of a software program whose name is Clik. This has been an innovative approach to children with especial education needs – in this case with some trouble when addressing maths problems. As the teacher said, she and another pupil have been subjects of this experiment which has not been evaluated yet. Besides to this, Anna takes part regularly in the rest of activities at the computer classroom alongside her mates.

Anna's drawing**Depicted parts**

- Screen with the name of the software being used (Clik) and the names of the users
- Keyboard + cable
- Mouse + cable
- Blackboard
- Anna and her mate
- Teacher
- 2 Tables and a chair

Texts

- “What a stupid program”, says Anna.
- “Teacher, it is time to use the computer”, says her mate.
- “Yes, it is. It is the computer hour. What is written in here?”, says the teacher.
- On the blackboard: “Pesetas. Insects. The beast”

General description

A4 drawing in full colour. The scene represents a session of a remedial program in which the teacher uses a special software, whose name is “Clik”. Two pupils –one of them being Anna– and the teacher are having a dialogue in a rather informal way about the need to start the session. No particular attention is paid to the two computers.

Comments on the drawing

Anna seems to identify computers with the remedial program in which she is involved. She likes very much the opportunity of having an almost private relationship with the teacher and with Maria, her mate in this program.

Anna: I enjoy very much these sessions, but we do not always use the computers. She does not pay very much attention to the computers, which seem to be part of the furniture in the classroom.

Anna's text: "What is to me the usefulness of a computer"

Words: 22

Sentences: 2

Nouns: *computer, classroom, teacher*Adjectives: *fun*Verbs: *play, do, learn, reckon*

Main argument: "Computers can help the teacher. But it is not easy to deal with them."

Comments on the text

Anna's ideas about computers seem to identify their usage with the possibility of improving learning. She seems to be very influenced by her need to have remedial sessions during which the teacher often uses software programs. According to Anna learning with computers is far more fun, but she does not seem to see herself in control of the machine. The computer is part of a triangle in which the other two components are the teacher and Anna.

3.5. Interview 5: Mireia

Age: 11 years old

Gender: F

Nationality: Spanish (native Catalan speaker).

Brothers and sisters: two big brothers.

Parents: Father = doctor. Mother = housewife.

Family situation: Mireia lives together with her parents and brothers.

Hobbies:

- Reading
- Playing with friends at home
- Playing with her cat and hamster

Game consoles at home:

- Playstation

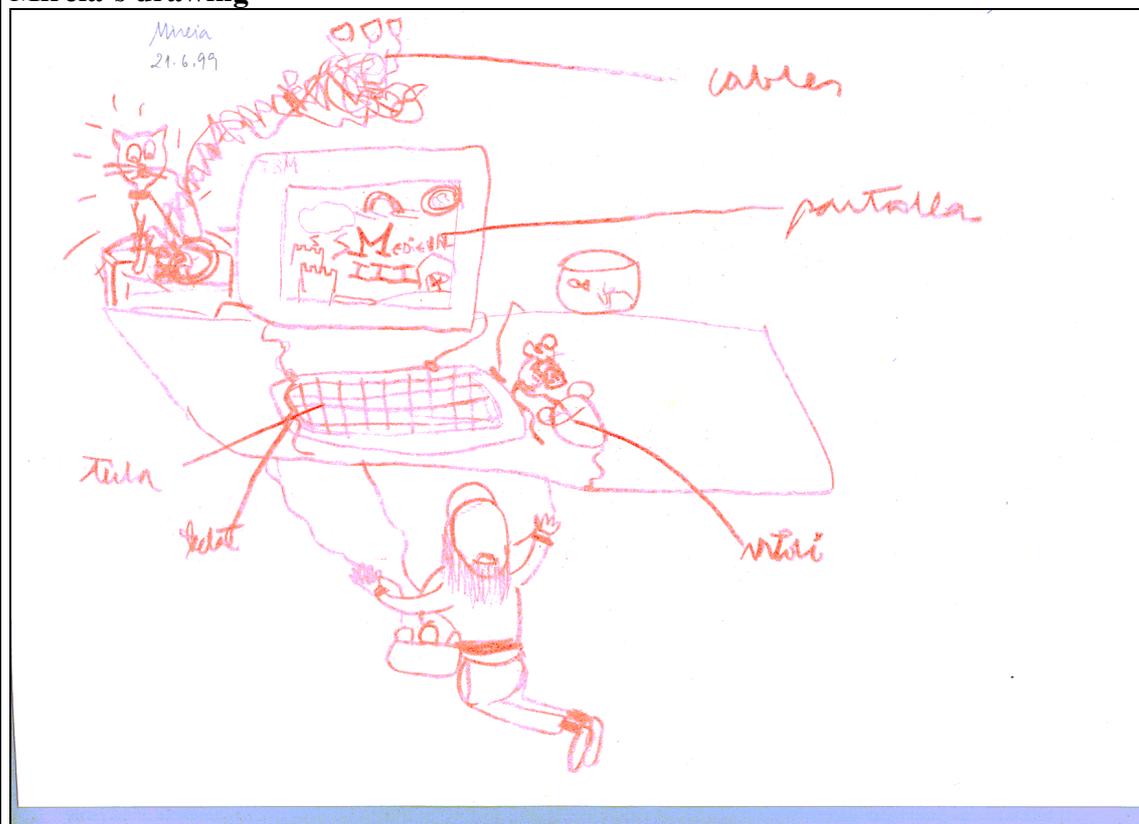
Use of computer at home

Mireia has a computer at home. It is shared by her brothers. Besides, her parent also has a more powerful computer which he uses for his work and to keep his patients' records. She knows that his parent has an internet connection, but she has never used e-mail at home or browsed www pages.

Anna has some computer games, all of them from Disney, such as "Beauty and the Beast" or "Bugs". But she likes most is to play with her brother's games, mostly of the genre of role playing.

Use of computer at school

Mireia has used computer at school games, spreadsheets and writing. Compared to her mates Mireia estimates her computer competence to be above average and almost "great". Mieria helps her friends when they experience some difficulties with software.

Mireia's drawing**Depicted parts**

- Screen with “Medieval” (a scene with a castle)
- Mouse and cable
- Keyboard and cable
- A bunch of cables
- Mireia
- A cat, a fish, and a hamster

Texts

- “Cables”
- “Keyboard”
- “Screen”
- “Mouse”
- “Key”

General description

A4 drawing in red and white. The computer is presented from the front, consisting of a screen with a scene from a role playing game “Medieval”, a keyboard, and a mouse with a lot of cables. The scene presents a girl trying to solve a problem with the cables, while the cat is prisoner of them. A mouse is eating cheese.

Comments on the drawing

Mireia tells that she likes very much to play games on the computer at home. When her brothers are still at school or playing football, she likes to be in the room where the computer is, with her cat and hamster.

Mireia: It is fun to have my cat and hamster with me. Sometimes they also use the keyboard or play with the mouse.

According to her, her drawing shows to what extent the computer at home has an enormous amount of different cables and the problems her cat Pussy is having

with them, especially when she was younger.

Mireia's text: "What is to me the usefulness of a computer"

Words: 32

Sentences: 2

Nouns: *computer, games, brothers, animals, movies, drawings*

Adjectives: *fun, quick*

Verbs: *play, create, make time pass by*

Main argument: "It is fun playing computer games because it is like having Disney movies at home."

Comments on the text

Mireia's thoughts are loaded with computer games and fictitious friends taken from the Disney movies and the corresponding games. She likes very much to produce her own drawings with personages taken from the movies. Unfortunately, she has to share the computer with her brothers and only from time to time they allow her to play with their games.

3.6. Interview 6: Marta

Age: 10 years old

Gender: F

Nationality: Spanish (native Catalan speaker)

Brothers and sisters: one big brother.

Parents: Father = teacher. Mother = teacher.

Family situation: Marta lives together with her parents and brother.

Hobbies:

- reading
- drawing
- computer games

Game consoles:

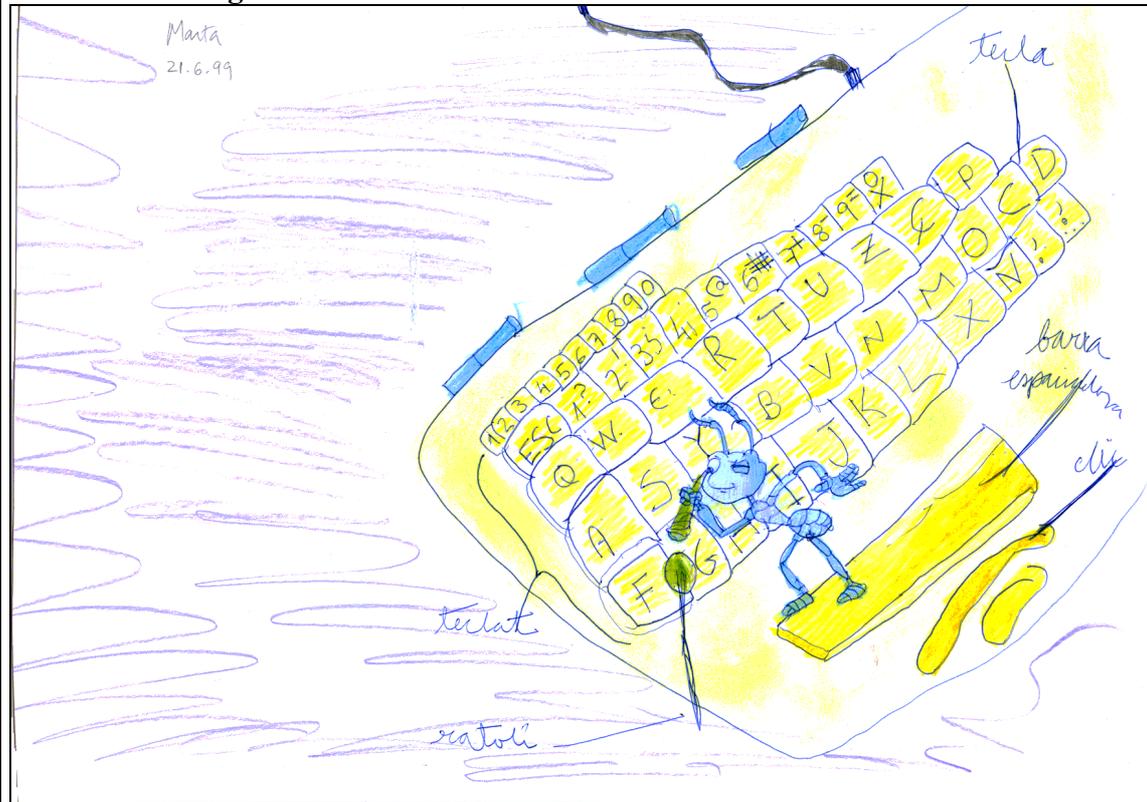
- None

Use of computer at home

Marta has got a computer at home. It is shared by all the members of the family. She has her own computer games. The one she likes most is the most recent “Bugs”. Until now she has not experienced the Internet, but she knows a lot about it because her parents often talk about it and about e-mail messages.

Use of computer at school

Marta has used computer at school for writing, arithmetic and games. Marta thinks the computer is good both for work and play. Compared to the other girls in the class Marta estimates her computer competence as “good”.

Marta's drawing**Depicted parts**

- Keyboard with individual characters
- Mouse and cable
- An ant taken from “Bugs”

Texts

- “Key”
- “Keyboard”
- “Mouse”
- “Spacebar”
- “Clic”

General description

A4 drawing in full colours. Only the keyboard is shown, with a little ant looking for something. The ant looks like the main character in the “Bugs” movie. A cable links the keyboard to the computer presumably.

Comments on the drawing

Marta explains that she often dreams about the possibility of some characters from her favourite games getting out of the screen. She would like it to happen because that way she could be of more help to them.

Marta's text: "What is to me the usefulness of a computer"

Words: 41

Sentences: 3

Nouns: *computer, school, games, adventures, characters*

Adjectives: *fun, real, quick*

Verbs: *write, play, learn,*

Main argument: "Computers let you have adventures whenever you like."

Comments on the text

Marta really likes very much her computer because of the games. She knows very little about the use of computers at work, although she acknowledges that they are very useful to learn new things. You can feel like being inside a movie and help the main characters to achieve their goals.

4. Collective work

Introduction of collective work

The class teacher introduced the collective work on the issue: “What might the computers bring in the future?”. The question was written on the blackboard and explained to the pupils by the teacher. The teacher explained that in order to keep track of the discussion everything would be video-recorded. Once started, the discussion lasted some forty minutes. At the end of it, the teacher summarised the main arguments, which are shortly described in the following section.

This activity was developed while the researcher conducted the interviews with the six selected pupils.

The main arguments

There were four different arguments. The first one, which was also the first to appear, is that computers will be behind any daily life operation or activity, more than now. For instance, when you wake up, your breakfast is going to be ready for you, following your preferences. The second argument is that computers will transform radically the way we work. In the future, you will speak to computers and order what operations shall start. For instance, you will say: “Send a letter to my friend”. And the letter will be prepared and send to him, directly to his computer (no reference was made to the Internet). The third argument is that computers will create new forms of entertainment in which you will be part of a computer-generated environment (such as a virtual reality game). Finally, following a request by the teacher, the pupils started a vivid discussion about computers and schooling in the future. There was a general agreement about the fact that computers will substitute texts and handbooks but, at the same time, it was recognised that the school experience means more than learning –exchanging views with your schoolmates and listening to what the teacher has to say.

5. General discussion

From the previous drawings, texts, interviews and general discussion a few remarks can be suggested, especially when compared with other countries cases:

1. These pupils have a very limited experience with ICT. This is particularly true in relation to the Internet. Almost no drawings or comments associate computers with the Internet. In the cases where this association is made, it seems to be caused by the existence of internet connections at home.
2. All the pupils seem to differentiate clearly between computers and game consoles, the former being more powerful and allowing a variety of uses.
3. The presence of computers at home, mainly when parental advice and involvement are seen, seems to be a determinant in the way in which pupils represent computers. Only pupils with computers at home can depict the different parts of a computer.
4. In general, pupils with almost no contact with ICT at home tend to have a more infantile representation. Inversely, pupils that see how their parents use the computer on a daily basis tend to insist on ICT as tools for work.
5. As a conclusion, it could be stated that these pupils' representations are more influenced by the uses they see in the adult world –mainly at home– than by the uses in which these pupils are directly involved at school due to their limited experience.