Teaching Devices in Education

Focusing on Technical Devices in Spanish Teaching

Master’s thesis in Informatics

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Abstract

The aim of the thesis is to investigate how teaching devices, with focus on ICT use are regarded in education. I make comparison with teaching without technical devices, but emphasize the teaching with such devices. I address questions concerning what technical devices are used and in which way these devices may enhance the education process. In addition, in which way the devices influence power and communication. The methods indicate a deductive-abductive approach, observations, interviews, and questionnaires. The theoretical framework focuses on knowledge, Linguistics, Pedagogy, cognition, and Informatics. The results-part is built up on two cases – one concerning teaching with technical devices, the other concerning teaching without those devices. The results imply that the schools of Sweden use computers and Internet in a very ‘common’ way. However, there are intentions to use cell phones with software to assist the teaching. By this approach, that would be possible to add an additional time to the lectures since the pupils and teachers can work outside the classroom. One problem with technical devices is named ‘noise’, which are things in between the ‘useful’ (technical) devices and issues around that can decrease the learning process. In addition; if the goal is to have a symmetrical relationship between teacher and pupil, it may be difficult without taking carefully account on the (technical) device in use, and perhaps regard them as cognitive tools. From what I found, the tools are not regarded as cognitive.
Acknowledgement

First of all: A HUGE hug to my sister thanks to her positive energy and to my entire family!

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A Plan International Barahona por su visión de la sociedad, así como a Decano Luca y Profesora Marcia, Hispaniola, Sto Dgo para que sean tan chévere

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To my friend and former workmate Mary Olsson, take care and my best regards to your brother and sisters. To my former neighbour Lindy Wafulla for all your help and for all things you do for your people. A Maya Kantola y tu hermanita y a toda tu familia: que anden chevere pues. A Jo: te cuidas mucho, a tu ‘bebe’ y a ‘Garcol’ suelllte en todo poh. A Professor Sandália Preta: para abrir as portas da capoeira para o meu menino, ele gostava muito. Boa sorte e tudo de bom!

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y a toditos que han contribuido a la mejora sustancial de la tesis…

…para que dicha fuera una realidad
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1 Introduction

Due to the technical development of today, a technical approach seems to be logical to become analytic (Davenport & Harris, 2007). Because of increased knowledge concerns, for instance, to acquire and teach as much knowledge as possible with fewer efforts and time, there are needs for different teaching devices (Verma & Sharma, 2006). The problem does not any longer seems to be lack of technical devices, rather knowledge of how to use these devices (Schwartz, 2008). Due to globalization and advanced technology, language teaching and language acquisition can be realized in many alternative forms, with technical devices and without, at distance and at physical attendance. The devices can be an ordinary word processor, an email-system, or it can be with the CALL-philosophy (computer assisted language learning). As far as I concern, language has become an increasingly important factor to be reckoned with in an increasing number of contexts. When looking for a job, the “additional language skills” have become more important. We use communities largely where we can talk with people from all over the world. Therefore, relevant questions would be in what way is the technology, and should the technology be part of the development of today? Are we always aware of how we should conduct ourselves to technology, and to ourselves when we use the technology? A natural follow-up question is how we can cope, and if we, regarding language teaching, can get a teaching without technical devices, but there the pupils can learn quite as much. Thus, (how) does the technology enhance the learning process?

1.1 From Another Perspective

In 2005, I made an excursion with students from the university called Universidad Nacional Experimental Simón Rodríguez (UNESR), Apure, Venezuela, to the reserve and village of La Soledad (The Loneliness). We did the visit to see how these peoples lived their lives. I took this opportunity to ask questions about education and language teaching. Not everyone who lived there could get along with the country’s official language, Spanish. In this particular village, the main problem was not lack of technical devices to assist language teaching, nor was the number one priority access to such devices. Rather, the problem was to get to school at all. A year ago, I returned to Venezuela. In a day there, a student uprising did start. Nor this time it was about the availability of technical devices to support language teaching. This time it was about water, food and better roads. Considering this whole discussion in a broader context, it feels like Maslow’s hierarchy of needs: Before a higher step can be met, the needs of the underlying steps must be met. One year ago, I went to the Dominican Republic and Venezuela. I had several objectives with these trips. One of these was to visit a children village due to my sponsorship. Another purpose was to visit schools. The latter is based on my intentions to become teacher in computers, languages and artistic activities. The latter purpose has a lot to do with this thesis, and therefore, I see a possibility to include these observations in this discourse.

1.2 Questionnaires to schools in Sweden

To get an idea of how big the use of technical devices to support language teaching is in Sweden, I sent out questionnaires with two questions to fifty-five schools across the country. The questions were designed as:

1. Användar ni teknisk utrustning inom språkundervisning? (Do you use technical devices in language teaching)
2. *På vilket sätt kan den utrustningen vara till hjälp i undervisningen? (In which way can that device support the teaching)*

I present the first question here, since the purpose for this first question was to make a picture to form an opinion whether it is relevant to study technology in relation to language teaching. From the second answer, I have chosen to use four of twenty answers since these four answers are concerned with Spanish teaching. I got twenty answers showed that about 90% use some form of technical hardware in any way related to language teaching (see figure 1-1). Note that the question is related to language teaching in all languages. I use ‘Not really’ to indicate fuzzy answers, that is answers concerned with both a ‘yeas’ and a ‘no’. I got two answers in this category and they are:

“Nej, endast för att skriva texter” (No, only to write texts)

"Nej, inte direkt" (No, not directly).

I would say that these two answers indicate that technology is more present when we realize, and technology has become that naturally that we take it for granted.

![Figure 1-1 “Do you use technical devices in language teaching?”](image)

**1.3 Prior Research**

Axman (2002) did a case study within the limits of the teaching program. Her purpose was to investigate the methodologies used when teaching German in order to elucidate the teaching process. Axman did the study with ethnographical and phenomenological methods. From this case study, she noticed that the communicative abilities, international information technology, and culture are in focus, which also is in line with Lpo 94 (Curriculum for the mandatory educational system, the preschool, and the recreation centre, 1994). She also claim that those three aspects are more in focus now (i.e. 2002) than before.

Within the limits of applied linguistics and as a pre-graduate thesis, Laurila & Saukko (2003) consider the inter-cultural understanding and its meaning for language teaching. In order to combine theory about inter-cultural learning with net-pedagogy they created a website with twelve exercises about the Finnish and Swedish cultures. The purpose with the application was to gain an inter-cultural consciousness. The authors claim that Internet can provide new openings for language education. Furthermore, computers and
Internet enable individual learning with a teacher having an active role that consists of guiding and supporting during the learning process.

Lecturer Bo Lundahl (B.Sc.), School of Teacher Education at Malmö University, discusses the relationship between pupil-active-working and learning, and to what extent the investigated work models can be applied to the learning of foreign languages. He does his study in the light of distinguishing information and knowledge. Lundahl claims that computer use itself not always implies a benefit. The quality is, instead, depending on how the computer is used. Other questions Lundahl asks are if the processes of learning Spanish are the same as for learning social science and related subjects and how comprehensive individual work or working in groups is. According to the author, it is urgent trying different work models and exploring which ICT-use has the greatest potential.

Schwartz (2008) suggests that teaching is a dynamic transaction between mind, materials, outcomes, and goals within a complex cognitive and socio-cultural environment. Due to the inability of how to implement the technology in the classroom, there remains a major contemporary problem with the usage of technology in education. In addition, he claims that the problem is not lack of tools (i.e. technical tools); rather it is the capability of understanding how to use these tools. In same paper, Schwartz (2008) says that teachers find it difficult to use technology to teach because they fail to think of technology as cognitive tools.

To New York Times (2008-03-07) Zeke M Vanderhoek said “I would much rather put a phenomenal, great teacher in a field with 30 kids and nothing else than take the mediocre teacher and give them half the number of students and give them all the technology in the world.” Vanderhoek, a former Yale student, former middle school teacher, and the creator of a charter school opening 2009, also said in same publication that the teacher quality and not laptop computer is the crucial ingredient for success.

Hinkel (1999) seeks to re-examine the relationship between culture, language teaching, and learning. He focuses on the awareness and the role of cultural factors in language learning. Henkel’s purpose also is to develop an appropriate pedagogy to address the issues identified.

As a way of summarize the prior research, any less some of the motivation for this thesis, I present the main conclusion in the table below.

<table>
<thead>
<tr>
<th>Contributor</th>
<th>Perspective</th>
<th>Starting Point</th>
<th>Result/Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axman (2002)</td>
<td>Teacher Education/linguistics</td>
<td>Investigate the methodologies used when teaching German</td>
<td>The focus on communicative abilities, international IT, and culture have increased</td>
</tr>
<tr>
<td>Laurila &amp; Saukko (2003)</td>
<td>Linguistics</td>
<td>Consider inter-cultural understanding and its position in the language teaching process</td>
<td>Internet can provide new openings for language education</td>
</tr>
<tr>
<td>Bo Lundahl (B.Sc.),</td>
<td>Teacher Education</td>
<td>Relationship being</td>
<td>Computer use itself im-</td>
</tr>
</tbody>
</table>
All these studies above discuss the teaching process and the implications for a particular method, with or without technical devices. Some of the authors question the legitimacy for having and using technical devices without understanding the consequences. Relying on this summation of previous research, it would be possible consider the concepts of cognitive awareness and communication important; but also culture.

When I was approaching the ‘problem’, I did that by not clearly have allowed it to be defined. To my prior knowledge and by having read prior research, however, these problems can be defined:

- Sometimes we use technology because it is accessible, rather than necessary.
- We do not consider in a sufficient way how these technical devices may effect, affect, and enhance the education process.
- We do not regard the technical devices as cognitive tools.

Other sources touching this area, beside the mentioned, are Cradler, McNabb, Freeman, and Burchett (2002) and other volumes within the same journal, and Tally (2006). In addition, Edyburn (2001) has a point here claiming no matter what device the teacher employs and if it were aimed for individuals with or without disabilities, a major concern still would be what we need to know about it, its users, and how to use it.

When doing my research and presenting my findings, it might be the fact that I do interpret and reinterpret issues that previously to some degree have been interpreted and I might do respond to things that have already received their reply. A proceed with this approach and, thus, this thesis is that I interpret these phenomena from a different perspective and with other methods. This procedure can be regarded as ‘tolkningars spiralitet’ (spiral interpretations) (Runfors, 2001). Meaning, redefining and reinterpreting issues, or including them into one’s own discourse in another way.
1.4 Aim of Research

The aim of the thesis is to investigate how teaching devices, with focus on ICT use are regarded in education.

I make comparison with teaching without technical devices, but emphasize the teaching with such devices. In order for me to fulfil the aim of the research, I address following questions:

- What technical devices are used and in which way may these devices enhance the education process?
- In which way do the devices influence power and communication?

1.5 Learning Objectives

By reading this thesis, the reader would have a picture of Spanish teaching in different contexts; how the Spanish teaching can be conducted in Sweden and the Caribbean. The thesis is designed to show a reflective and critical viewpoint on the use of teaching devices in education with focus on technical devices. This can be generalized and incorporate education and the use of technology in a broader context. The mentioned work gives a picture of the technical devices available for language teaching.

1.6 Delimitations

The raised aspects and the questions asked can be applied to teaching in other languages. To get a better focus I have only chosen to focus on Spanish teaching. Noteworthy is that I do not treat the cultural differences between Sweden and the Caribbean.

1.7 Interested Parties

Since this thesis focuses on (Spanish) teaching, it may be of interest for all educators. The thesis shows different teaching devices, in particular technical such likes. Therefore, it can also be interesting for those companies providing technical products for educational use. In addition, institutions involved in education at higher level and research may have an interest in the thesis to connect to their current areas. In addition, this thesis can be of interest for companies with relationships to Latin America.

1.8 Notation and Definitions

From a broader perspective, the term ‘technical device’ almost incorporates every technical device. Here I use the term referring to as technical tools and equipment such a computer, cell phone, projector, and etcetera, and to the auxiliary devices and peripherals attached to computer, cell phone, and other units (software, CD, web cam, etc.).

In a broader way, ‘artifact’ refers to as artificial objects created by human beings. Within certain disciplines, the term refers to as ‘errors’ or ‘mistakes’. In this thesis, the term refers to both. I will make it explicit when I refer to the one or the other of the two definitions.

‘Classroom’ concerns places where the language teaching take place, whether it is classroom or not, textually.
As for ‘pupil’, I refer to as those persons learning language by the teacher, including privates, organizations, and etcetera.

I use the term ‘participant’ to indicate all those persons and components making impact on what is going on in the classroom. Those can be human beings or artifacts.

When I talk about ‘communication’, I refer to as all communicative actions regardless of being between human beings or devices.

As for observations, ‘Inside’ refers to as ‘participation observation’. ‘Outside’ refers to as ‘observe/observation’ without participate.

All quotes in chapter 4 are answers from the questionnaires and utterance from the observations translated either from Swedish or from Spanish to English. Due to the spoken language character, some sentences were quit difficult to translate.
1.8.1 **Acronyms**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>CALL</td>
<td>Computer Assisted Language Learning (a philosophy)</td>
</tr>
<tr>
<td>HCI</td>
<td>Human Computer Interaction</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>LAD</td>
<td>Language Acquisition Device</td>
</tr>
<tr>
<td>Lpo 94</td>
<td>Curriculum for the mandatory educational system, the preschool, and the recreation centre, 1994</td>
</tr>
<tr>
<td>MIS</td>
<td>Management Information Systems</td>
</tr>
<tr>
<td>NLP</td>
<td>Natural Language Processing</td>
</tr>
<tr>
<td>SLP</td>
<td>Spoken Language Processing</td>
</tr>
<tr>
<td>UNESR</td>
<td>Universidad Nacional Experimental Simón Rodríguez (Biruaca, Apure)</td>
</tr>
<tr>
<td>UR</td>
<td>Utbildningsradion (The Swedish Public Service and Educational Broadcasting Company)</td>
</tr>
</tbody>
</table>

Table 1-2 Acronyms
2 Methods

To make comparison and regard Spanish teaching from different perspective, I compare my findings of Spanish teaching with technical devices with such a teaching without those devices. Even thought I make comparison with Spanish teaching in two contexts, my focus still is on the teaching with technical devices. In order to fulfil the aim of my discourse, as laid down in ‘Introduction’, whereby there lacks proper knowledge and clear directives concerning technical devices in education, I address these methods hereunder, relatively. I have also chosen to conduct these methods below to achieve a deeper understanding of the topic and the research process. I have not strictly kept myself to chose the one or the other of a conceptual couple, rather have I chosen a more iteratively path forward in several respects. I believe the methods chosen may be fruitful in able to let theory meets empirics; also to check, verify and systematize (Kjørup, 1999).

2.1 Categorization of Knowledge

There are different kinds of knowledge to develop. Here I outline those I found most important regard to this thesis.

Critical knowledge: In this thesis, certain criticism is found regard to not being aware of the consequences of using technical devices in teaching. In addition, whether those devices enhance the education. The position is if some form of technology is implemented, one should critical take account on the effects. This is important in many contexts: economics (Squarewise, 2006), teaching mathematics for social justice (Gutstein, 2007), ecosystems (Hatziolos, Hooten, Vestergaard, & Unluata, 2003) or in other situations (Irvine, 1997). This is also truth in this context as the prior studies indicate. According to Spanish teaching, the teachers should be aware of method choice, technology, suppliers of used technology, the side effects, and etcetera, to get an idea of if the devices are right in accordance with the chosen pedagogy and syllabus.

Theoretical-hypothetical-empirical knowledge: This thesis includes general statements about natural phenomena. That is, what I actual perceived during my observation and outline here, and does not regards to “per definition” (Kocabas, 1992, p. 11-12). The point here is that those phenomena are testable against the prefixes “according to the theory” and “according to the hypothesis” and in many aspects, the utterance can be made generalized (ibid.).

Descriptive knowledge: I mediate descriptive knowledge as describing a state of world. However, it seems to be some sort of conflict by the fact of arguing for critical knowledge. From one perspective, we there is ‘descriptive’ on the one side and ‘critical’ on the other (Yanow, 2005). Even so, I think I succeed in combining these two contradictions. Maybe because of ‘contradiction’, the “enemy of knowledge”, can acquire knowledge (Agazzi, 1990, p. 205, 208) and by making it clear than giving an opinion and making a description.

Generalized knowledge: “Generalization – that is, the pursuit of knowledge specifically ‘general’ in character.” (Yanow, 2005, p. 58) In order to make comparisons and transfer certain phenomena or behaviour to another context, one should strive for make the outcome general (Yanow, 2005). To make this happen, I have chosen not to read up on the structure of the Spanish language. Instead, I am satisfied with saying a Spanish
lesson is taking place to have a delimitation for the thesis. This provides the content being easier to transfer to other contexts. These contexts may belong to both languages teaching, as to other curriculum in which the use of technology is or would be present. Some of the parts are not possible to generalize. Answers from the questionnaires dealing with percentage, is one example of such.

Reflective knowledge: This concept may be explained as knowledge about one’s own knowledge or as meta knowledge (Dokic & Égré, 2007). In this thesis I want, by being reflective, show how to close in on a phenomenon by contemplating and reflecting over the same. This is a way to understand the phenomenon and oneself (de Maistre, 2004). Therefore, I reflect on the outcome and its place in the world. For instance, I use culture analytical concepts that are useful to become reflective and regard the findings from different perspective and levels (Henriksson, 2004; Schein, 1985).

2.2 Research Approaches

There are many problems with the terms ‘quantitative’ and ‘qualitative’. The reason is that not all researches seem to be aware of what they actually mean with a quantitative or qualitative approach attached to the research process since they lack of defining ‘science’ (Yanow, 2005). I will therefore explain the terms (of natural and human) ‘science’ and ‘scientific’.

In Människovetenskaperna Kjørup (1999) has a discussion on the distinction between the natural science and the human science. In the field of human science, he includes more or less all that does not belong to the natural science. A major difference between the conditions in which the natural science can acts compare to the human science, is that the former more often and in a completely different way, can make the results from the studies on a mathematical correctly viewpoint. The Human Science may more often oblige themselves to estimates, which for that matter does not need to be less adequate. A similarity between the natural science and the human science paradigms is that both work in a way including (re)searching and guiding themselves throughout relevant literature in able to gather data for processing. Thereto, theirs works also consist of making interpretations of texts and source materials; although this kind of work tends to be more a part of the hermeneutic science and for that reason, be more a part of the human science (ibid).

As in the case of the researches within the natural science, those within the human science also have needs of trying to find individual facts: set dates, phenomena, names, and etcetera. These statements above show that there are not watertight between these two research paradigms and that the man interprets them both, even though each discipline has its own vocabulary, its own facts and hypothesis (Stewart, 1997). The multidisciplinary area, which Kjørup (1999) names “bindestreckdiscipliner” (Hyphen disciplines/compound disciplines), shows that there is not possible to say that this belongs to one science and this to another, or none at all (Kjørup, 1999, chap. 1).

After having read about how Kjørup treats knowledge and the research area, one can define some important key words heavily associated with a scientific approach: check, verify, knowledge, theory, empirics, systematise, context, and phenomena. These keywords belong to the human science as well as to the natural science. This gives strengthens to the argumentation that the human science also can consider scientific. In
this thesis, I have intended to be as scientific as possible considering the text above and the circumstances regarding time framework and size of thesis.

2.2.1 Abductive, Deductive and Inductive Approaches

The most common way to obtain permission for such an aim I seek, as laid down in ‘Introduction’, is according to Lindfors (1993, chap. 4) by selecting a deductive approach. The deductive approach, basically, refers to as moving from theory to empirical findings, while the inductive approach reverses (ibid.). One reason for moving from prior research to one’s own findings is the need of creating a theory or comparing an existing one, which can be done by observing phenomena. It may also be the case that there already exist theories to rely on, but, in one way or another, not sufficient for the actual matter. Is this, the later one, reason for embracing on an inductive approach, the theoretical sources should be as few as possible, just to not let these previous conclusions affect one owns (ibid.). A third way is a path in between these two ways. That is, the golden middle path (ibid.).

The theoretical framework gives opportunity to understand what has been concluded before within the current research area. It also gives an opportunity to pass the research questions again to see which issues more or less have been put into foci and which have not. The theoretical framework enables bringing up certain key concepts, central thoughts, and understanding the relationship between them. During and after the theoretical studies, I discovered how my horizon moved and how I came to discover that I actually red through some of the part areas within the main area with better strength and greater interest than other parts. After I got this picture, I returned to the research questions to see how to edit them in order to get even more specific. I also understood that one cannot only ask a question and expect getting an answer, and later on, it will do. Rather raises the question by the interest in receiving an answer, and the answer will become partly transformed into the form of a new question; and this question requires its answer, and so on; as a sort of a never ending spiral (Runfors, 2001); or as if they were lines meeting at a breakpoint just too be separated again.

There are advantages and disadvantages with different ways of acting. One disadvantage with the deductive approaches is the risk of having a product with too much desktop character and too poor connections with reality. As remedy for this problem, I have sought to put the empirical material in a focus incorporating smaller fieldworks, but without thereby forget the theoretical part constituting the basis. From having gone from theory to empirical findings, I have turned back to the desktop to fill any contingent gaps arisen after receiving more knowledge that is empirical. However, I am not really convinced that I have done this to a golden middle-path-extent (Lindfors, 1993). After a short reflection and discussions with fellow students, I realized, however, that my methods are rather close to a middle path and perhaps can be considered quite abductive, from which I draw the conclusion that I used the both approaches. One reason for that is rather than confine myself to what I had intended from the beginning, it felt very natural to, deliberately, go back and fill in any theoretical gaps left. As time went, I felt that I approached the answer to the riddle that from the beginning was not entirely clear defined. Another reason for using the abductive approach is that it is conveyed that I, initially, not entirely could consider myself being accountable for my choice of theory in terms of choosing an accurate ground from the beginning (Johansson, 2002). A concrete example of this is the case of online teaching (see 3.3.2). Since the answers from the questionnaires were from schools conducting ordinary education (i.e. not online teach-
I did not feel that I had to describe online teaching in major aspects. However, than I got the result I realized it might be fruitful incorporating such pedagogy since the results deals a lot with Internet and assistant through cell phone.

2.3 Data Collection

The results presented in chapter 4 are information from following sources:

Sweden

Alfred Dahlinnsskolan, Huskvarana, Sweden: This school is a compulsory school. I did observations during to lectures with two different upper level classes. I present the result from these two observations as if they were one only. The differences with these two occasions were that at the first I did only observe. At the second, I did participate using the textbook, CD; and computer as the pupils.

Four of the answers from the Swedish questionnaires: In the result part, I only use the answers that are concerned with Spanish from this questionnaire.

The Caribbean

Hispaniola, Santo Domingo, Dominican Republic. This is a private institute for foreigners as well as for the locals.

Majagual Basic School, Guayuyo, Barahona, Dominican Republic. This is a small local school with children in same age as in a Swedish compulsory school.

SOS Children Village, La Cañada, Maracay, Venezuela. This school is managed by the SOS Children Village’s School Program. The age of the pupils are comparable with the age of those in a Swedish compulsory school, with a majority in the lower ages.

Under the headlines, respectively, it is presented what I did in each school

2.3.1 Literature

I have chosen to support this thesis with theory incorporating knowledge, linguistics, pedagogy, cognition and informatics. To find papers and books, I have firstly used the search engines from the University Library, Jönköping University. Besides that, I have used papers stored from other courses and disciplines. Several of these papers, as well as the papers from the University Library, are retrieved from Science Direct, Access Science, and SpringerLink.

2.3.2 Qualitative Interviews

Interviews are concerned with the possibility to accomplish the maximization of the telling of the truth and sharing features of everyday life (Baker, 1983). Interviews as a way of understanding the situation of the interviewed person can be a good way to find out about a state of word, logically, emotionally, or empirically (Olsson & Sörensen, 2007, chap 6). To have a fruitful result it is important to know why ask and what to ask, than, one will know whom and how to ask. Every other steps also must be considered; for instance, how to analyze, verify, and visualize the result (ibid.).

Pripp (1999) tells the story about an invisible ‘tredje närvarande’ (a third person present) which can be good having in mind. This person were at the table in an almost tele-
pathically way, putting questions to the interviewees. This third person followed him closely, and sometimes even took over the interviews. After a while, he came closer to this third person. This happened when the entrepreneurs answered questions that had never been asked. That is to say, when asking questions, that would be important being aware of how our attendance may affect the answers received. The interviewee has expectations depending on who the interviewer is; and this expectation can affect the answers. To make remedy for this problem, when I interview persons I talk about something completely different, and tabs in matters that are not relevant but that this person can relate to in somehow. The reason is that individuals interpret the messages and insert them into their perception of themselves and others. We have an idea of identity, our society, and ourselves. That is, double hermeneutics (ibid.).

I did one interview in July 2007 at Hispaniola in Santo Domingo, Dominican Republic. I did this interview in accordance with the observation (see 2.3.4). Therefore, the interview was more of open conversation. The interview was also realized with a professor of the school. In July 2007, I did one interview at Majagual Basic School, Guayuyo outside Barahona, Dominican Republic. I did this interview with a pupil while representatives from his family were present. It was not a long discussion on the matter, just around 10 minutes. Before and after the discussion I visit his home and talk to the other people in the villages and we played baseball. This way of doing interview also has the advantage of being less formal (Agar, 1980). I did one interview at SOS Children Villages, La Cañada, outside Maracay, Venezuela in June 2007. Here the interview was conducted in a similar way as the one I did in Majagual. The difference here was that I interviewed a director of the children village and this director guided me around the buildings. In the middle of the discussion, I played handball with some of the children.

2.3.3 Questionnaires

There are three main uses for questionnaires (Carlsson, 1990):

- To describe the present situation
- To identify a standard
- To decide relations

Carlsson (1990) writes that one reason why questionnaires are used largely is that these can be composed in a simple and cost-effective way. From these responses, one can also attract large amounts of data (quantitative). The problem is, rather, to have a clear picture of what sort of information is desired and, thus, be able to cover the research questions and aim of the research (ibid.).

Between April and May, I handed out fifty-five questionnaires to different institutions teaching languages. The reason for sending out the first questionnaire (see 1.2) was to get a picture of the present situation in terms of how common it is with the technical devices in language teaching in Sweden. I also wanted to know what sort of technical devices are used and how they enhance the education process. When I chose which school should be objects for the questionnaires, I used a very fundamental random algorithm made in Java. The addition I did to this algorithm was an iterator to avoid same number showing up twice (see figure 2-1)
Using Eniro.se to search for ‘skolor’ (schools) will result in more than 8000 hits. To de-limit the search I set the limit to 83. After having selected the result I had 55 schools to send out e-mail, due to problem to find e-mail addresses (I did not want to use the phone due to the time) and doublets. I did not have any particular criterions such as pupil’s ages, the teacher’s degree, whether it is a public or private school, and etcetera.

The reason for sending out the second questionnaire (see Appendix 1) to the schools of Dominican Republic and Venezuela was to follow up my observations from previous year in order to have a picture of the present situation. The answer I received showed that the state has not changed at all. To find out which schools of the Caribbean I should choose, I did not have any particular criterion either. I just wanted to have a picture of the school situation and compare with the Swedish schools.

2.3.4 Inside and outside Observations

**Outside**, in terms of observations, refers to as a perspective in which the researcher only observes, passively or actively, but not participate.

**Inside** therefore refers to as a participating perspective. To achieve a good balance of the studied object, one should mix these approaches. If the researcher only observes passively, the researcher would never experience the usage of the object. If the researcher only participates actively, the same may instead affect the users to such an extent that they are not behaving as they normally do (Owe, 2003; Arnstberg, 1997; Ehn & Löfgren, 2001). This affecting ones behaviour can regard to Allwood’s ‘Power and Communication’ (see 3.2.3).

2.3.5 Qualitative Observations

I chose the observations (and interviews) I did in the Caribbean to explore whether I through these observations could consider that does not appear in Spanish teaching in Sweden, and by that contemplate Swedish teaching from a different perspective. This procedure can be seen as part of the abductive way of work (see 2.2.1). Another way of regarding it is with the concept of ‘sökarljuset’ (the searchlight). In order to succeed in the research, it is important to be flexible and not stick to a single method. Something likes walking through a place from different directions. It is believed that one has seen
everything and knows the place by rote, until one closes in on from a different direction and finds more details (Ehn & Löfgren, 1982). Another way to put it is by describing it as: in order to find something, we have to look there the issue is not to be found, this to be able to make comparisons (ibid.).

A qualitative approach is characterized by proximity to the research object and by the meeting with the object’s situation in a direct way. The qualitative approach is also characterized by an attempt to put one self in same position as the object. That approach, in which one seeks to remove a subject-object relationship, is common in the natural science. One strives to see the world from the object’s perspective (Holme & Solvang, 1991, chap 6). To my knowledge, this way to work is very much adopted by Anthropologists and Ethnologists. In those approaches, one strives to get pictures of a certain article or occurrence that also the users adopt and have for everyday use or face in their everyday life. One seeks to understand a particular people or phenomena on basis of the people themselves. However, it is of importance being able to change between an inside and an outside perspective (Geertz 1973; Kajiser, 1999; Márquez, 2007; Århem, n.d.; Öhlander, 1994, et al.). That is, the ability to change perspective carries great weight. So state also Holme & Solvang (1991, chap 6) referring to Enerstevdt (1971). Several of the authors mentioned above use ethnographic methods; and since this thesis deals with technology and I choose to conduct observations and interviews, this approach seems to be tending (Suchman et al, 1999).

Holme & Solvang (1991, chap 6) suggest four principles the researcher should aim for to maintain good quality in their researching.

- **Proximity** to the investigational units, literally.
- **True reproduction** of the researcher’s objective view on the occurrence.
- **Descriptive** descriptions.
- **Direct quotations** should be used to be able to understand the individual at closer level.

To achieve the effect of a proximate and multidimensional perspective, I have done observations in both Sweden and the Caribbean. In chapter 4, I describe a state of word, as I experienced the phenomena, thereto; I externalize my viewpoint on the same. I use quotations to give a more live and direct character, but they are not putted in form of spoken language. A disadvantage with observations is that they are very time consuming. An advantage with observations is that they are a better reflection of the investigation’s focus, since a better picture can be provided. Responses from questionnaires or interviews are more considered reconstructions of reality (Andersson, 2001). Here in Sweden I did one observation. This observation took place at Alfred Dalinskolan, Huskvarna, during two lessons and with two different secondary school classes. During the first lesson, I only observed (outside), and during the second, I did, to some extent, the same as the students (inside). For instance, I did exercises from the textbook with belonging CD. In Santo Domingo, the Dominican Republic, I did one observation in July 2007 at Hispaniola during 4 days. I did shorter observation in Barahona, Dom. Rep, Majagual Basic School, Guayuyo, also in July 2007. These observations were made at same time as the interviews (see 2.3.2). The schools in the Caribbean do not use technical devices. The school in Huskvarna does that.
2.3.6 Doing the Observations

Here below I do further explanation on which sort of observation I have done. The categories and explanations are retrieved from Olsson & Sörensen (2007, chap 6):

**Participation Observation** in terms of participates without explicit telling the aim of the observation, was conducted in the school of Alfred Dahlinsskolan, Huskvarna. They knew that I did a thesis within Informatics dealing with computers in education, but not all details

**Unstructured Observation** meaning that the researcher wants to gather information within a certain problem area. That is, the problem is not that clear defined compared to **Structured Observation** in which the problem is well precise. No matter which one of these two approaches one chooses; there are one **W**(hat) and one **H**(ow) to consider anyway, and they are:

**What to observe?** Here I wanted to observe those parameters outlined in the questionnaire (see 2.4 and Appendix 1), which are related to my aim and research questions. Secondly, I kept my eyes open in case of confronting anything unexpected.

**How to register the observation and how to behave during the observation?** In addition to the methods, which are described in ‘Methods’, I was considering other approaches. For example, I considered using video camera to document the observations. Then, I had had the advantage of both collecting pictures and sound synchronized. From the collected material, I had been able to deduce perspective and depth, which would have been good if I had wanted to study architecture in the classroom in detail (see 3.3.1). In my case, I believe that the disadvantages weighed more than the advantages. These disadvantages are concerned with costs, and the time to analyze and edit the video. Therefore, during the interviews paper and pen were used, not any other devices such as tape recorder or video. There are both advantages and disadvantages with such an approach. For the interviewer it will be easier to put focus on the questions and the answers using recorders. At same time, the atmosphere may feel a little strained. Due to this later reason, I choose not to use recorder. Another disadvantage with not using recorder or camera is that our perception is selective; hence, we cannot observe or register everything that occurs around us, or even in front of us (Parker, 2007).

2.4 The Questions

For the questions, and as a base for the observations, I used a model by Allwood (1977; 1980) (see 2.6.2, table 3-1, and 3.2.3) which indicates “some of the principle ways in which power relations influence communication” (Allwood 1980, p. 1) and determines a certain type of activity. This model is concerned with power and communication within the discipline of general linguistics. First time I saw this model was about five years ago. When I for one year went to The Caribbean and when I now set out to write my thesis I had this model in mind. I was thinking on how this model could be used in another context, which is the reason why I tried it here. I have used Allwood’s (1977; 1980) parameters and re-change and re-interpret them to make them fit in this context. According to the questionnaire, I putted most focus on these questions:

A

3. Which devices are concerned with the lectures?
The reason to not write ‘technical devices’ here was that I did not want to exclude anything and I also wanted to use exactly the same questionnaire for the schools of Caribbean.

4. **Describe the behaviour and the instruments with which the activity is pursued.**

When I set out this forth question, I had Allwood’s different symmetrical relationships (see 3.2.3) in mind and in which way the technology does affect the behaviour in the classroom. One question I had in mind was if the behaviour and relationship between the participants is still symmetric when technical devices are in use. ‘Instruments’ in the question cannot only be related to (‘technical) ‘devices’, but also to ‘Pedagogy’ (see 3.3), and can in that case be related to ‘pedagogic instruments’. For instance, in online teaching and learning, the instruments are not the same. From this, it is understood that ‘instrument’ can have different meaning depending on the context.

6. **Which beliefs and values are attached to the lectures?**

Firstly, this question was only regarded to the atmosphere in the classroom in general terms. Now, I also regard it to Schwartz’ (2008) discussion on cultural awareness (see 1.3); in which we should see tools as cognitive tools. I also put focus on the attitude attached to the lectures. This question can also be related to ‘cognition’ (e.g. Yudkowski, 2006; Schwartz, 2008). In that chapter, it is claimed that learning is cognitive and social; therefore, it can be of interest to observe belief and values.

7. **How do you measure the results/outcome of the lectures?**

Due to a technical approach to many contexts seems to be logical today (Davenport & Harris, 2007; Newell, 2002; Davenport 1998; et al), I put this question to see in which way the technical device are used in this aspect. For instance, are they any benefits with the use of technology to measure the students’ results, or what has been done during the lectures?

9. **How do you give feedback to the pupils?**

The reason for this question is the same as for the seventh. In addition, I presumed that feedback could be given through more channels using a technical approach compared with a non-technical.

10. **In which way can the pupils get your attentions?**

The reason is the same as for the seventh and ninth questions.

**B**

**In which way are your methods reliable in order to make the pupils aware of**

- **1.** Syntax?
- **2.** Morphology?
- **3.** Phonology?
- **4.** Non-verbal communication (gestures, etc)?

With part B, 1-3 in mind I wanted to test possible language program and see in which way these programs are to count on in this aspect. According to number 1-4, talking
about the schools that do not use technical devices, I wanted to see how they solve these linguistics components.

**C**

1. **Following sentences are examples of ambiguity. With the pupil and your main device in mind, how should you explain/solute these two sentences:**
   a. Estuvo arrecho por saltar.
   b. Ella manejó el auto de la compañía hacia la ciudad.
   c. Vimos a una muchacha con gemelos en el bosque.

From a study I did in the linguistic sub-field of Pragmatics, I showed how difficult there is to translate sentences containing ambiguity in a manually way. In a computational way, it will be even harder (Farwell & Helmreich, 1999). This question can also be related to ‘Informatics’ and to the field of artificial intelligence. The meanings of these sentences are depending on the context and on what were concerned with them. The sentences can be related to the Speech Act Theory (see 3.2.2) and to the illocutionary force; that is, what the speaker concerned with the utterance.

2. **Following sentences are retrieved from the book Crónica de una muerte anunciada (García Márquez, 1981) and contain idiom and quality implicature. Also with the pupil and your main device in mind, how should you explain these sentences:**
   a. Hablaba con el alma en la mano
   b. No tiene precio
   c. Juega limpio
   d. Fue un golpe de gracia
   e. O te escondes aquí, que es tu casa, o sales con mi rifle

See C 1 for explanation. In addition, one has to be aware of cultural aspects here since this way of speaking is concerned with idiom and implicature, which meaning can depend on context and on how to use jargons. For reasons mentioned in 1.6, I did not take account on this last cultural aspect.

**D**

1. **Thinking on your devices (not only the main device, but also every device, technical and non-technical) within your methods/approaches: which device(s) do you consider most important in order to succeed in terms of teaching and learning Spanish?**

2. **Thinking on your methods, in which way can these methods give understanding of the meaning of the culture surrounding Spanish and the countries connected to it?**

Here I just wanted the interviewees giving their own opinion on the matter.

**2.4.1 Remaining Questions**

I putted the remaining questions to see if the lectures could be considered ‘normal’. That is, not extraordinary for a certain purpose: a special day, restoration, and suchlike. I also did it to have more questions to put in just in case.
1. What is the purpose or goal of the lectures?

2. Describe the set of roles belonging to the lectures

5. During which preconditions in terms of factors such as time and place of activity, take the lectures place?

8. How the turn-taking does looks like (Who speaks to whom, about what, for how long)?

11. Do you have any topic(s) for the lectures?

What other important factors/aspects must be taken into consideration in order to teach and learn Spanish?

2.5 Method Validation

2.5.1 Reliability and Validity

According to Carlsson (1990), it is important to consider the appropriate methods for data collection in terms of reliability and validity. Reliability refers to the accuracy and security that can be achieved with the measuring instruments used. A data collection method’s validity indicates how well it measures the variable that is intended to be measured (Carlson, 1990). A measuring instrument’s reliability can be good while its validity is poor. An example of good reliability is the implementation of a weighing for a subject. The results of the weighings will be the same each time, but according to ones estimations, the results would be 50 kilograms and not 20 as in the case. This scales is suffering from poor validity. If the scales had shown different results each time, and within a range from 20 to 50 kilograms, both reliability and validity had been bad. If the scales had shown 50 kilograms each time had, on the other hand, both reliability and validity had been good.

One way to verify the reliability is to measure the phenomena at a certain time, and then re-measure the same at another time. (Olsson & Sörenssen, 2007) As I mentioned I did follow-up questions to my one-year earlier observation in the Caribbean. I did that to increase the reliability. As another way of increasing the reliability, I sent the questionnaires as an indicator to form an opinion about the present situation in terms of technical devices in classroom. By combining questionnaire and direct observations, I could compare the written answers with my own observations, and thereby increase the reliability.

By relating the second concept, validity, to the questionnaire and research question, some of the questions are difficult to measure. Number 4 and 6 are examples of such concerning values and beliefs. As the number 4 concerns, we can ask (interview) in order to get an answer, but number 6 are difficult to grasp even though we ask. Due to this dilemma, I did not always achieve good validity. One suggestion for increasing the validity was to use the communication model created by Allwood (1977; 1980) I used as base for the questionnaires including theoretical concepts regarding power, communication, and speech acts. This model, as it was mentioned, is concerned with parameters indicating power in communicative activities. As for the speech acts, my viewpoint was that this concept simplified, could be fruitful to measure the intention of certain behav-
iours. The reason is that this concept deals with different dimensions of a communicative activity. My idea was by transferring it into this context, it would give:

<table>
<thead>
<tr>
<th>Locutionary</th>
<th>That is used/done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illocutionary</td>
<td>The reason/meaning</td>
</tr>
<tr>
<td>Perlocutionary</td>
<td>The effect/impact</td>
</tr>
</tbody>
</table>

Table 2-1 The Speech Act Theory Re-defined

For example, “that is done” can be referred to start a computer. “The reason” can be referred to use a language program. “The effect” can be referred to how the pupil understood or caught this moment.

2.6 Analyzing the Results

In the result and analysis parts, I have mixed the outcome with my own reflections; and I think, according to this case, that I have a point there; therefore, I shall show what it is to be reflective. In order to understand other people, we have to be reflective and to see others unknown issues in a serious way and take these new findings for what they are Århem (n.d.). Maybe it might sounds like a paradox to be both systematic and reflective. However, these two approaches are can be combined since the reflective study is a thinking process (cognitive awareness). It reflects on the situation (e.g. the usage of technical devices) and makes interpretations continuously. At the same time, it is a systematic approach if we decide what we are going to interpret and reflect on (Thomson, 2002). My viewpoint here is that, when I came to my result I did know on what to reflect, which I did not know when I started.

I have chosen to present the result in the current text, in addition by formulating a table to better summarize, and visualize the outline from the cases. The result section is divided into two parts: one part for the schools that use computers as an assistant for the education (Case 1). The second part contains, consequently, the schools that are not assisted by computers or other technical devices.

2.6.1 Reflective Analysis

I chose to reflect over the results in a culture analytical way in which theoretical formulated questions and perspectives are inserted. To my knowledge, from my studies within culture and art subjects, a culture analytical model can be fruitful to most sciences and many projects, that can be to analyze small and major issues (Ehn & Löfgren, 2001). Generally, this approach is opted when focusing on human beings (e.g. Eriksen, 1993). Here I believe mentioned model is applicable since this thesis deals with Informatics, which (often and in this case) implicates, society, the human interaction, and learning/knowing. The purpose of such an analysis can be to put focus on those issues which (do not) appear or show up, to articulate phenomena, seek explanation for a specific behaviour, get in contact with all those small details creating the world. My attitude to this way of doing analysis is that it works as a model and device to which one can applies the fact or material. It can be regarded as a table in which a meeting has been postulated to take place. By matching this meeting with the parameters, respectively, when, how, contrasts, seeing the world in three pieces (Schein, 1985), and etcetera, one can have an image of what is going on or did (not) happened, and in which way a particular phenomenon works and behaves. This image does not need to be correct; nevertheless, it is
still an image or opinion. This dictum will makes it easier to do comparisons with other facts and information. However, respecting the case of cultural studies, now the borders that divide the different disciplines are not as sharp as they used to be, culture could be everywhere. So states Laudon (2007) in terms of demographical aspects concerning electronic commerce, Davenport (1998), and Newell (2002) in terms of culture relative to technology and knowledge within organizations.

However, one must have in mind; that it does not seem to be easy defining concepts which deals with the human being in a directly way, and the concept of culture is not an exception. Anttonen (2003) claim that there is no pre-culture; we, human beings, create culture. This approach to culture implicates that culture is dynamic and that we cannot define a ‘common culture’. According to Giddens (1997), culture refers to the values that the members of a specific group share, in relation to the norms making impact and the things that are made within this group. Another side of culture is that we cannot talk about culture in the classroom, because there is no such a culture. Culture is a dynamic process changing over time, which changes together with the changing of technical devices. Thus, we have to watch every ‘technical step’ we do in the classroom. That is, we create the culture depending on what we are up to (Anttonen, 2003). Reading papers on the issue, one can see that the concept of culture is extremely broad and comprehensive, and can be understood from local, regional, national and international levels (Wright, 1998; Mendez Echenique, 2007). Culture also exists everywhere (Anttonen, 2003).

The main hypothesis concerning the use of a cultural approach to analyze the findings regard:

- the ability of understanding the cognitive thoughts surrounding the ICT use.
- project the ICT use into a humanistic approach to make the reader aware of how to face the issue from a broader perspective.

2.7 Extradited and Falling Offs

Of course, I did not account many factors. Some of these factors are sex and age, cultural factors, and educational status. One of the falling offs constitutes A company providing CALL-program. The company never sends their answers as promised.

2.8 Summary

Here below, I just briefly summarize this chapter.

<table>
<thead>
<tr>
<th>Categorization of knowledge</th>
<th>Critical, descriptive, generalized, reflective, theoretical-hypothetical-empirical.</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the distinction natural and human science</td>
<td>Difference: more often and in a completely different way, make the results from their studies on a mathematical correctly view point.</td>
</tr>
<tr>
<td></td>
<td>Similarity: work in a way that includes (re)searching and guiding of themselves throughout relevant literature in able to gather data for processing.</td>
</tr>
<tr>
<td>Abductive/deductive Approach (a mix between</td>
<td>Abductive: an interaction between deductive and induc-</td>
</tr>
</tbody>
</table>
these two approaches is conducted) Deliberately go back and fill any theoretical gaps. **Deductive**: from theory to empiric findings.

<table>
<thead>
<tr>
<th>Data Collection</th>
<th>Scientific papers and books, Qualitative Interviews (3), Questionnaires (20+2), Qualitative Observations (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Questions</td>
<td>Allwood’s (1977; 1980) ‘Power and Communication’ as base</td>
</tr>
</tbody>
</table>
| Method Validation | **Reliability**: follow-up questions to increase the reliability, Pre study as an indicator to form an opinion about the present situation, combining questionnaire and direct observations.  
**Validity**: good validity was not always achieved. Allwood’s communication model and speech act theory to increase the validity. |
| Analyzing the Results | The outcome is mixed with reflections.  
Reflective (culture) analysis: understanding of the cognitive thoughts surrounding the ICT use. Projecting the ICT use into a humanistic approach to show the issue from a broader perspective. |

Table 2-2 Summary of Methods.
3 Theoretical Framework

I have chosen to back up the thesis with theories treating

Knowledge: In this section I start from Socrates and Plato's view on knowledge and power to current researcher's view on the same

Linguistics and Communication: I deal with various theories that regard language and how to acquire language. A linguistic area that I deal with a little more than others is pragmatics. The reason for that is that pragmatics and technical devices are not an entirely simple combination, especially when we talk about translation (Lundquist, 2007; Hickey, ed. 1998; Farwell & Helmreich, 1999), but also talking about technical device as assistant in Spanish teaching.

Pedagogy: Here I have a discussion on to reflect and position the pedagogy, and a discus on online pedagogy.

Cognition: Dealing with different aspects of cognition from an informatics and a pedagogic viewpoint.

Informatics: Here I mention cognitive aspects on Informatics and other issues regarding the aim and research questions.

3.1 Knowledge

The definition of what it is that concerns knowledge is to my knowledge not obvious. As for another case (unpublished) within Knowledge Management, I wrote some of these as an introduction. The purpose with that study was to investigate how to transfer tacit knowledge.

The concept of knowledge is related to the concept of epistemology. Epistemology can be theory of knowledge. Some persons deserve to be mentioned according to this. The title as father of tacit knowledge can be awarded Michael Polanyi; however, I believe we have to understand that some of Polanyi’s thoughts probably are derived from earlier theorists. Two famous philosophic persons during early epochs are Socrates (470-399 B.C.E.) and Plato (427-347 B.C.E.). From what is found according to Socrates, knowledge is recollection and the "ignorant person merely needs to be reminded in order, by himself, to call to mind what he knows." (Howland 2002, p. 3) Knowledge is also something that already exists, but in a latent form. By reading Howland (2002) it is obvious how complex the concept of knowledge is and how difficult it is to understand what knowledge is, and what we actual know about ourselves or about others:

“What Socrates thinks he knows about himself seems to conflict with what he thinks he knows about the God./…/ Socrates finds that it is not easy to separate himself from the God.

Because he seeks to understand the God, he must examine himself; because he seeks to understand himself, he must investigate what the god means.” (Howland 2002, p. 62)

Plato's opinion was that the persons with knowledge should take the decision without ask those (the folk) without knowledge (Holm, 2006). During this epoch they did not mentioned the tacit knowledge directly but by reading between the lines we can tell that
knowledge and tacit knowledge meant a lot of power. (Szlezk 1999, p.17; 29-30; 42; 44). Here is another example:

“If a human realise the highest of his capabilities he becomes philosphos, because through his knowledge of the Ideas he comes near to God, who is sophos” (Szezak 1999, p. 67)

According to Polanyi (1983), we cannot describe anything that we know in an easy way because “we can know more than we can tell” (Polanyi, 1983, p.4). He takes an example with faces. He says that we can recognize a face, but that is more difficult to tell how we can recognize a particular face among others. Regarding this to language acquisition, I believe that, as for tacit knowledge, some of our linguistics (pre-)skills are very difficult or even impossible to describe. However, I think it seems presumable that we have some sort of embedded ratiocination and this ability makes us (the child) in a quite simple way be able to acquire a language and build advanced sentences, without knowing too much grammar.

Over time, the perception of knowledge has changed (Kjørup, 1999)

1. Knowledge is insight or consciousness raising (Plato, Socrates).
2. Knowledge is the lesson that belongs to a written culture in which knowledge should get through the books or learned by the people (antiquity)
3. Knowledge is the result of a research effort.

Since the late 1800s, it was not required that knowledge exists in advance. The inspiration to think in this way comes from natural science. Over time, knowledge became something that should be controlled or verified, from being something that previously only had been transferred without any critical review (Kjørup, 1999). In able to check and verify, the scientists put the theory (the proved material and secondly information) to meet with empirical work (field study). One example was to use the church as informants, that is to say, a source from which scientists could get empirical data and information, which, after analysis, could be turned into knowledge. The scientists also sought to be even more systematic during the investigations when different things were observed. These things can be called phenomena. In the case of linguistic studies, for example, they looked at the relationship between different dialects and peoples and putted them in different pragmatic situations. An example mentioned is how the Greeks more or less ridiculed the peoples they encountered due to their way of speak and use the sounds. What happened then can be seen as an explanation for the interest of the contextual (ibid.). Pragmatics is associated with ‘context’ because the pragmatics is about putting things in certain contexts and relationships (Hu-Naga, 2007).

3.2 Linguistics and Communication

The following theories after the linguistics preconditions about language acquisition are mostly from the linguistic part ‘pragmatics’. Pragmatics is an independent component of the linguistic theory containing various elements. Some of the main elements are implicature, presupposition, speech acts, and deixis (Huang, 2007). A central thought of the pragmatic perspective is to regard linguistic communication as an expression of action and interaction between sender and receiver. In pragmatics, questions are addressed about the behaviour and acting (Allwood, 1978). Pragmatics is a bridge between what is
said and what is meant, and make the linguistic communication more alive and active (Huang, 2007; Allwood, 1978).

### 3.2.1 Linguistics’ Preconditions

Within linguistics, there have been many suggestions on how we actually acquire language. Here I will outline three aspects that had had big impact on this discussion. The behaviourism supposes there is a, fairly, linguistic ability. Two positions situated on both sides of this standpoint is the universal grammar that tends to be paired with Noam Chomsky’s work from the 60th century, and suppose that is meant to be a, somewhat, innate linguistic ability called LAD (Language Acquisition Device) (Chomsky, 1957, 1959). The second is Piaget’s vision in which the linguistic capacity develops during the infant years. Arnqvist (1993, p. 38) explains this too. The behaviourism argues that children have an ability to vocalize, to process spoken language and to see the connection with the child’s own language, associate a spoken word with its meaning, and to have an innate interest that justifies the child to associate words with its meaning. However, they do not believe that the child immediately is able to interpret the language, but that the interpretation takes place during the interaction with the world around. According to the behaviourism, the child learns because of a model based on stimulus and response. This means, by successfully strengthened, for instance, if the child names a particular subject with its correct name after having done errors, one gives strengthen to the behaviour extending the subject (Bloomfield, 1934). According to Goodluck (1991), another important aspect of the universal grammar is that it gives the child the possibility to create new sentences that were never uttered for the child. This gives the child possibility, with only a simple grammatical knowledge, to create complex sentences.

Jean Piaget discusses how to further process knowledge through special skills developed through general ideas (Piaget, 2002; Mandler, 2004). The connection works in such a way that learning takes place in understanding with once maturing; hence the concept of cognitive development. However, one should bear in mind that this is not a theory based on talent, but developing in terms of understanding and learning from what we do (Arnqvist, 1993). Piaget talks about assimilation; that is, the child responds to linguistic information and translates that sound to resemble a sound that is easier to pronounce. For example, two different sounds become one common sound. Piaget also speaks about how the child uses earlier achieved knowledge when new knowledge will be acquired. The third concept is accommodation. Here the child tries to understand in a new way, in contrast to assimilation (Sensmo, 1994).

If Piaget belongs to the cognitive field, Lev Vygotsky belongs to the interactionistic filed which puts the language in front of the thought. Vygotsky accentuates the importance of social interaction to develop a language. However, as Piaget claimed, he insisted that there are cognitive tools; but that are, nevertheless, the social interactions that compel us to development. Nevertheless, still that is important to emphasize that Vygotsky did changes in his explanatory principle. There are three main phases (Daniels, 1996). During the 20’s Vygotsky focused on a unit of activity mediated by signs used as tools or instruments to control behaviour. During this epoch, he claimed that the stimulus-response unit provides the common foundation for learning. After 1930, he shifted focus and talked about physiological systems (analytic unit) in which the focus also should be putted on the development of new relationships between mental functions. After 1932 a third phase came with an idea that more reflected the explanatory principle than it reflected the unit of analysis. During this phase, he emphasizes a system of psy-
 psychological constructs that would simplify the analysis of psychological processes about the concrete interactions (Daniels, 1996, p. 28-29).

### 3.2.2 Pragmatics and Communication

Allwood (1995) does an interdisciplinary review of some of the main contributions relative to communication and activity within theoretical linguistics. For instance, he covers Wittgenstein, Austin, and Searle. Wittgenstein formulated many ideas concerning our conception of language. Wittgenstein confirms that the community plays a role for the analysis of the language. Allwood considers Wittgenstein’s ‘meaning’ (something useful) and does this term more precise by outlining three types of contexts:

- Perceptual context
- Social activity
- Activated background information.

The second contribution Allwood suggests is speech act theory as formulated by Austin in 1962 and Searle in 1969. Those ideas point out that speaking, writing, and communicating should be regarded as species of social action.

A speech act is often regarded as constituted by locutionary, illocutionary and perlocutionary acts. Locutionary is what the speaker (transmisor) says textually and has certain significance. The illocutionary is what the speaker concerned with the utterance and concern the receiver. It might be to promise something, to make a question, or to give an order. The perlocutionary is the impact the utterance will have on the receiver. This latter part, therefore, is that influences the recipient's view of what was said.

There are some problems with speech acts theory (Allwood 1995). Some of these problems concern the assumption that an utterance normally has only one illocutionary force. Another problem concerns its lack of how the action status of an utterance is dependent on its contextual relations. A third problem concerns cultural conditions. The problem here is that this theory has mostly been concerned with English (ibid.).

### 3.2.3 Power and Communication

Allwood (1977; 1980) draws a line between conventional communication on one side and informally on the other side. Allwood (1980) suggests there are principle ways in which power relations influence communication; for instance interpersonal power and the role of power. What Allwood wants to say is depending on who is saying what to whom, the implication of the utterance can differ. Allwood regards the concept of interpersonal power and power relationship; the later one he explains as “a power relationship is said to hold between two or more persons if they can control each other's behaviour or thoughts”, (Allwood, 1980, p. 1). If the capacity for controlling one another during a communication is not equal, we have to do with asymmetrical relationship (Allwood, 1980). For instance, if you are a teacher you might have the possibility to give some sort of order to your pupil; and the pupil has probably not the same authority to do the same.

Returning to the concept of interpersonal power, if persons while wielding their power are capable to make others adapt their behaviour, there will be a decreased degree of freedom for the others (subordinate persons) and an increased degree of freedom for this
first person (the dominant one). That is, if one has to adapt once behaviour to that of others, that first person would be the subordinate one and thereby has a decreased freedom. If one can make the others restrict their behaviour, that person will become the dominant one and thereby having interpersonal power (Allwood, 1980).

Allwood (1977; 1980) outlines the most important parameters within certain type of activity (see table 3-1). These parameters can be applied to all types of conversational moments and describe the set of roles. Allwood (1977) makes an example of logistics, which incorporate buying, selling, transporting, and etcetera. The reason to split the parameters into two sections is that the first half, 1-6, describes the type of activity and power. The second half, 1-6, describes communicative behaviour in terms of aspects in communicative interaction. As mentioned, that is from this table I formulated the questions to the schools.

1. the purpose or goal of the activity
2. the set of roles belonging to the activity
3. the behaviour and the instruments with which the activity is pursued
4. contextual factors such as time and place of activity and beliefs and values attached to the activity
5. the results of the activity
6. the conventional procedures relating and determining

1. turntaking
2. feedback
3. sequences
4. prevalent types of speech acts
5. topic
6. style with regard to:
   a. syntax
   b. morphology
   c. phonology
   d. non-verbal communication.

Table 3-1 Communication in conversational activities (Allwood, 1977; 1980).

3.3 Pedagogy

3.3.1 Reflective Pedagogy

Considering those attributions MacVay, Murphy, and Yoon (2007) claim referring to Angiello (1998) that would give “Technology alone will not improve learning. It is the way we choose to employ the tool that will make the difference.” (MacVay et al, 2007, p. 42). It is all about creating a smart classroom there the pupils’ outcome can be evaluated. The content of the statement above seems to be obvious; nevertheless, it appears that the use of technical devices during teaching has mixed results (MacVay et al, 2007). For certain reasons, it is a complex matter building on students’ knowledge and at same time make them critical aware (Gustein, 2007), that is even more complex to integrate technology in a language lesson due to the importance and difficulty of facing technology as cognitive tool (Schwartz, 2008). So what can be done? Change the classroom configuration? Applying the Seven Principles for Good Practice in Undergraduate Education (MacVay et al, 2007), these seven principles will make the classroom con-
figuration and technology work better together. I will not outline all the seven principles or factors, but just mention some of them.

The first principle focuses on the student-faculty contact in and out of class, which is an important factor to motivate and involve the student.

The second principle concerns collaboration as an important factor to transfer information and knowledge.

The third principle claims the importance of active learning where the student can reflect on what she/he has learned.

A very considerable claim is that of being reflective. It is first than becoming reflective, actually, one will see the world and thereby understand what one knows or does not know. Perhaps there is no need to make it to that point there one walks within oneself (i.e. reflexivity) for 42-days (de Maistre, 2004). Sometimes it seems that some sort of meta investigation should be adequate to find out how to use technology in classroom and be able to teach the pupils. However, the case of de Maistre is still interesting: de Maistre shows how the daily customs can help to understand the big things around the world. His study also helps to adopt different perspectives and can be useful when investigating other phenomena (ibid). By conducting de Maistre’s approach, one might be able to reflect on the situation (i.e. the technical devices) and make continuously interpretations. At the same time, as in the case of making questions (Thomsson, 2002), there is possible to be systematic while reflecting if it is made clear on which aspect of the technical device to interpret and reflect on.

Now we it seems to be more obvious how things are even more complicated by the suggestion of being both reflective and systematic at the same time. This thesis regards pedagogy in terms of Spanish teaching and emanates from having certain goal that includes making the pupils to use the language in a systematic way. The reason to adopt that approach is that Spanish deals with roles, and in same time, the pupils have to reflect over the tasks given. That is because of they have to discover new ways of interpreting the language on their own; inasmuch as the teacher cannot give them all knowledge (Polanyi, 1983) and this knowledge cannot be achieved only by being systematic.

The new approach to pedagogy, that seems to be logical, due to the technology entrance in the classroom, should put more foci on critical knowledge; on why things are as they are and about the historical, economical, political, and cultural roots of technology in the classroom. That is, a redefinition of Gustein’s (2007) socio-political conditions.

3.3.2 Online Pedagogy

Perhaps there is no need for books Dorringer (2005) claims. “Why is the shift toward online education happening?” (Davis & Dykman, 2008, p. 11). Many of the technical devices of today provide distance teaching. No matter how to teach and through what device, still there are same factors to observe in order to reach the goal, that is, to make the pupil learn. Davis & Dykman (2008) put some of these factors on foci. I do the same by integrating four of them into this small discussion on this side of pedagogy: The teaching method must be able to provide for lifelong learning. Only because of letting technology into the ‘classroom’, the goal of teaching shall not be forgotten. To keep the goal of teaching remaining in the mind, it is necessary regarding the technology as an extended arm, rather than as a substitute.
As an online approach can provide timely access to the latest academic theories (Davis & Dykman, 2008), that should also be well considered in teaching. This includes searching through more 'papers' than the ones popping up first from the common search engines. As the online approach increased, the focus shifted from ‘sage-on-the-stage’ to ‘guide-at-the-side’. In other words, the first approach emphasizes on the formalized lecture format of traditional schooling. The second approach emphasizes the new paradigm in which the teacher has become a facilitator for the learner. This latest approach has developed outside of the current emphasis on using modern technologies for teaching. Furthermore, the authors claim (ibid.), by referring to other literature, that this profound shift fits well with teaching online. Finally, accordingly, the teacher's roles have changed a great deal and still are changing. The question is whether all teachers and pupils keep pace with those changing and keep up with the developments. There is perhaps a risk that the teacher is becoming more and more passive and ensures that pupils rely too much on his/her own capability of use the (online) technology. All these speculations are worth consideration.

3.3.3 Positioning the Pedagogy

Yoon (2008) puts focus on the metaphor ‘positioning’, introduced to analyze interpersonal encounters from a discursive viewpoint. This concept, which is more of a conceptual framework than a method or technique, permits the researcher to study the dynamics of evolving social interactions. For Yoon’s own research, the concept “provided insights for analyzing data as to how the teachers’ approaches were related to the students’ possibilities for their learning” (Yoon, 2008, p. 504).

Yoon (2008) identifies, from prior research, two perspectives on positioning:

1. Intentional self-positioning/reflexive positioning
2. interactive positioning/positions another

The reflexive perspective means that the individual sees the world from a given position. This way of viewing the world also gives the constructionistic position of taking responsibility for one’s own actions. By having certain positioning, the choice will guide the teacher in their interactive approaches with students in classroom settings (Yoon, 2008). This perspective does not give details on how and why the same person positions her/himself. The second position gives details to how the phenomena occur in relation to others. Here, also, are the details concerning limits and extends what whose people can say and do. Given this discussion, a teacher can make impact on the pupil by positioning in one way or another. If the teacher positions the pupil in a badly way, it may affects the learning process because of pupil’s seeing her/himself or the teacher with a negative attitude. This can be referred to Allwood’s (1977; 1980) interpersonal power in which one can have to adapt ones behaviour to that of others, and thus become subordinate.

3.4 Cognition

3.4.1 Distributed Cognition

Even though “cognitive biases are settled science” (Yudkowsky, 2006, p. 1), it seems difficult to realize its importance. An important factor during the teaching process is the
ability to opening up the processes of learning to inspection. The major advantages with
this approach are, according to Schwartz (2008, p. 390-391)

- the potential to increase the likelihood that teachers will make careful selections
  of the tools they employ for teaching.
- it focuses teachers’ attention on their, as well as their students’, cognitive events
during the time their students are attempting to learn.
- it permits teachers to be mindful of the recursive and reciprocal influence their
learners have on the things they do to teach, as well as the activities their stu-
dents engage in to learn.
- it also makes salient the artifacts students leave behind from their attempts at
  understanding.

The idea is that learning is cognitive and social. Thus, the teachers and their devices
make considerable impact on the pupils. Therefore, it is important to pay attention to the
teacher's background talking about the devices that will be used: “Understanding that
learners require tools to think and learn is the crux of effectively teaching with tools”
and pupil need to be aware of each other's roles, the knowledge, and the intentions, to
have a successful meeting. This statement can be seen from the light of technology due
to the technological devices that are present even though it is not always apparent how
and why such devices should be used. These issues can be putted into same context as
the model created by Allwood (1977; 1980) (see 2.4.2, 3.3.1 and Appendix 1), and there
Allwood points out the power and turntaking within a communicative activity.

The final issue Schwartz (2008) addresses is the extent to which technology may be
useful to get use of the artifacts the pupils leave in order to use these artifacts as “a
scaffolds to enhance the learning process” (Schwartz, 2008, p. 399). In this case, ‘arti-
fact’ is concerned with ‘errors’ or languages ‘mistakes’. Accordingly, the introducing of
technical devices let the teacher not only use them as supporting system, in which the
pupil is placed. There is a need of consider more but just buying a computer. When
technical device makes entrance, “a qualitative transformation occurs regarding the
ways teachers teach and students learn.” (Angeli, 2007, p. 271). Talking about distrib-
uted cognition, there are many implications for this integration to have in mind and
there have been many papers on the matters. Through these papers, which Angeli (ibid)
exemplify, that is obvious that this subject is not easy to define, neither to identify. By
understanding human activity within the context of integration and implementation of
technology, we have to be aware of the individual cognition, as well as of the design of
the education and of the social and cultural implications (Angeli, 2007, p. 271-273.). All
these inventions save a considerable portion of our intellectual power (Dascal 2002).

3.5 Informatics

3.5.1 Categorizing Teaching Devices

The computer aid can be regarded in following respects (Bernhard, 2000): Cognitive
tool: regarding the tool as cognitive tool, this would create meaning and understanding
for the context. Technical tool: regarding the tool as technical tool, the positive out-
come will be limited, and up until negative for the pupil’s learning.
Reeves (1998) claims that technology is used in school because it is believed they can have positive effects on teaching and learning. He outlines two major approaches to using technical devices in school: Students can learn from technology, which often is referred to instructional television, computer-based instruction, or integrated learning. Student can learn with technology. This regards to cognitive tools and constructivist learning. That is, technologies those enhance the cognitive powers of human beings during thinking, problem solving and learning. This can be algorithm, database, or teleconferencing programs.

Teaching devices may be classified under two heads (Chand & Pahuja, 2003, p.104) Formal Teaching Devices involves special technique in their handing in certain typical activities and audio-visual aids. Under this head, teaching is conditioned and learning takes place by way of indirect experience, which is effective in language teaching. These are conversation, discussion, recitation, questioning etc. Informal Teaching Devices are those devices by which learning takes place in an incidental way and knowledge comes as a by-product of direct experience (e.g. picnics, excursions, tours, etc.).

The pragmatist Dewey developed characterization of the interest of the learner. Bruce and Levin (2003) reinterpreted Dewey’s four categories into four uses. The motivation for doing that is the increased use of computers and electronic networks in all facets of teaching English. Bruce and Levin’s point is that these four categories can consider an alternative to building taxonomy on formal instructional models or various relative features, and can be regard to four-part-taxonomy. These categories developed are media for Communication permits new forms of meaningful communication and reconfigure the relationships within and outside school and its pupils, teachers, and other stakeholders. Example of media can be automatic translations and hyperlinked definitions of words. Into this category, the distinction between computer-based documents or other writing, and a printout, can be putted. A major goal for communication is the expression of thoughts for the comprehension of others. In this category, there are four subcategories: Document preparation includes, for instance, word processing, outlining, grammar, and presentation system. Communication incorporates direct communication with people within and outside school through e-mail, communities, for example. Collaborative Media can be remote environments for sharing data, graphics, group decision support systems, and etcetera. Other ways people remotely can work on common issues, is teaching Media, that is, for instance, tutoring, instructional simulations, drill, and educational games. Expression makes possible new modes of self-representation, for instance, hypermedia allowing intermixing of photos, sounds, video, tables, and etcetera. The major goal in this category is for a person to express his/her own thoughts for their own future comprehension Technologies used include painting programs, music making, animation software, and multimedia, for instance. Inquiry expands the definition of reading to include hypertexts and multimedia, represents in easily accessible forms all sorts of information that learners need about books, authors, science, and etcetera, and about how to inquire in different domains. In this category, language puzzle generators and modules can be putted. With this program the learner can use their knowledge of context and language to make educated guesses to fill in blanks in the puzzle. The modules can focus on the analysis of settings, characters, plot, and on various genres, or discourse mode, such as literature or poetry. The pupils can browse texts from databases as a method of stimulating their reading and writing. Examples of such are various online dictionaries and complete statistics from Olympics games. “The use of technology to support inquiry in language arts is a promising domain for developing powerful new
media for learning and teaching.” (Bruce and Levin (2003, p. 9). Construction allows producing, formatting, reviewing, and proofreading of texts easily and assists in the construction of tables, charts, and graphs. Media for construction are uses of technologies to affect the world. It can be in form incorporating to create text and multimedia. One example is so called micro-worlds to allow students to test hypotheses and discover new phenomena within the language field. These micro-worlds can enhance the pupil’s motivation and they lead pupils to think deeply about language related problems. “The use of technology to support construction in language arts is a promising domain for developing powerful new media for learning and teaching.” (Bruce and Levin (2003, p. 9).

Proficiencies, classifications or stages have been outlined by many others authors. One of the first is probably Hirumi & Grau (1996). I have conducted to use seven of them, which I found adequate (Callahan, Kennedy & Subhokt, 1990; Lundeberg & Tengborn, 2000; Scala, 2008; Schulte, 2006): Productivity tools are used to enhance learning and to become more productive. It can be to produce presentations with spreadsheets and graphic tools. Telecommunication tools are made to interact with others; like publishing reports, or talk through tele-communicative media. With learning tools, there are no needs for working in a linear mode. The tasks can be done in a (more) optional order. With some learning tools, the user can also interact and by that action influence the story. Management and support tools incorporate tools for, for example, tasks related to scheduling and organizing. Expert system can work as management and support tools. With an expert system, it is possible to facilitate tasks concerned with economic, scheduling, organizing, and decision. Authoring tools allow writing multimedia program. That can be educational game with hyperlink in order to get access to databases or Internet to look up words, or explanation, for instance. With authoring tools that is possible to crate learning tools. Typical for authoring compared to programming is that they reduce the amount of programming mastering to produce programs. Programming tools, in general, require a more technical skill than authoring tools. Programming tools are programs or applications to support or link programs together for a specific task. It can also be used just to maintain or debug. Collaborative tools permit collaboration over a given tasks with others.

3.5.2 Cognitive Informatics

That is a complex handicraft to persuade a technical device to understand the process of spoken language due the sophisticated mechanism and complex organism (Moore, 2005), and due to our ability to process language. Even though the researches have advanced, it is yet difficult to transfer the complex capability of the understanding of spoken language. In this aspect, our understanding of how spoken language works is still “modest in comparison to the sophisticated communicative behaviour exhibited by the average human being.” (Moore, 2005, introduction). This area is called Spoken Language Processing (SLP). My view is that we do not need to hold on to machine translation or speech analysis, or similar, which is included to make the computer assess the spoken language. It is enough to realize that we use the device in teaching and that we therefore need to reflect on how the user intends. If we consider a program, made to train translation of sentences or vocables, we will realize that we somehow have to make that device understand how the user intends. If we do not think so, the user will become aware of that it is not enough to make the current task correct; the user must do it as the program should have done it.
The figure 3-1 below is retrieved from Moore (2005) and is interesting not only in the context of SLP, but also in this context. Firstly, there are fourteen concepts in the figure. Three of them are already explained and some of them (Psychology, Engineering, and Linguistics) probably do not need any further explanation in this case. Shortly, the others are explained as follow: "Artificial Intelligence [AI] is the study of how to build or program computers to enable them to do what minds can do." (Boden, ed. 1996, p. xv)

The technique of AI, which actual is several techniques, can be used to make scaffolds more adaptive to the developments in the learning process (Looi, ed., 2005, p. 4) “Two claims for artificial intelligence techniques in education are that they can increase positive interactive experiences for students, and they can enhance learning” (Looi, ed. 2005, p. 6). According to Pattern Processing, pattern analysis is the process of finding general relations in a set of data. Applications of pattern analysis range from bioinformatics to document retrieval. (Cristianini, 2004, p. i). Natural Language Processing: (NLP) covers, first in a broad sense and than in a narrow sense (Boden, ed., 2005, p. 229) 1: processing issues at all levels of natural language understanding, 2: the syntactic and semantic processing of sentences Psycho-Linguistic is the empirical and theoretical study of the mental faculty. Psycholinguistics has become increasingly important in the development of the new discipline of Cognitive Science (Davies, 2002, p. 26). A psycholinguistic aspect can be conducted to understand communities in order to achieve better understanding of Spain’s multiethnic and multilingual make-up (Turell, ed., 2000, p. 3). Human Computer Interaction (HCI) is about “harmonizing people”, activities, contexts, and technologies within some domain (Imaz, 2006, p. 104). “Cognitive science has focused on.../ studying how cognitive tasks are apportioned between people and machines. Other scholarly disciplines, including psychology and anthropology, have supplied methods of HCI research.” (Zhang, ed., 2005, p. vii). HCI is an “organic component” and key component of discipline of management information systems (MIS) (Zhang, ed., 2005, p. 3). Information Retrieval is the result of how people come to use the web and through that, search engines, portals, digital libraries, and etcetera, to fill their needs of information (Goh, 2008)

![Figure 3-1 Spoken Language Processing at the Heart of 'Cognitive Informatics' (Moore, 2005).]
By watching the figure one can realize how complex it will be when entering a technical device to be integrated and interacting with other individuals in a language situation. If we stick to my previous example of the computer program in the classroom, we have to do with artificial intelligence and the elements that, as shown in the figure, constitute AI; given, that we want the program to, as far as possible, understand how we think and want to work. To that, we probably, to certain extent, want the program to ‘respond’ in a, for the given situation, realistic manner. If we have another look at 3.2.2-3.2.3, which deals with the linguistic sub field of pragmatics, there will be easier to grasp the complexity of such situations that may arise. Pragmatics deals largely with the implicit in an utterance. In the case of the computer program, we have the objective of, which implicitly can be understood, that when the user uses a synonym in front of another; and so far this choice is correct based on that given situation, the program should respond thereafter.
### 3.6 Summary
Here below, I just briefly outline what was concerned in this chapter.

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Insight or consciousness raising (Plato, Socrates), Belongs to a written culture (antiquity), Result of a research effort (present time)</th>
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<tr>
<td></td>
<td>We can know more than we can tell (Polanyi).</td>
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<tr>
<th>Linguistics and Communication</th>
<th><strong>Linguistics’ Preconditions:</strong> Standpoints: fairly or innate linguistic ability</th>
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<td></td>
<td>Social interaction important to develop a language</td>
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<td></td>
<td>Assimilation: the sound becomes similar to another sound. Accommodation: To understand in a new way</td>
</tr>
<tr>
<td>Pragmatics and Communication</td>
<td><strong>Speech act theory (SAT): locutionary</strong></td>
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<td></td>
<td>(what the transmitter utters), <strong>Illocutionary</strong> (what the transmitter concerned), <strong>perlocutionary</strong> (the impact of the utterance)</td>
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<td></td>
<td>Interpersonal power and power relationship (dominate, subordinate, (a)symmetric, total asymmetric)</td>
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<td></td>
<td>Parameters to analyze activity in terms of power, communication, and behaviour</td>
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<tr>
<td>Pedagogy</td>
<td><strong>Online Pedagogy:</strong> “Perhaps there is no need for books”</td>
</tr>
<tr>
<td></td>
<td>Shifted focus from ‘sage-on-the-stage’ to ‘guide-at-the-side’</td>
</tr>
<tr>
<td>Positioning the Pedagogy</td>
<td><strong>Perspectives:</strong> 1. Intentional self-positioning. 2. positions another</td>
</tr>
<tr>
<td>Cognition</td>
<td><strong>Distributed Cognition:</strong> An important factor during the teaching process is the ability to opening up the processes of learning to inspection</td>
</tr>
<tr>
<td></td>
<td>Learning is cognitive and social</td>
</tr>
<tr>
<td></td>
<td>That learners require tools to think and learn is the crux of effectively teaching with tools</td>
</tr>
<tr>
<td>Informatics</td>
<td><strong>Cognitive Informatics:</strong> Complex persuade technical device to understand the process of spoken language due the sophisticated mechanism and complex organism, and due to our ability to process language</td>
</tr>
<tr>
<td></td>
<td><strong>Categorizing Devices.</strong> The approach to a specific device, why it is used and in which way.</td>
</tr>
</tbody>
</table>

Table 3-2 Summary of Theoretical Framework
4 Results from the Data Collected

The results in this chapter are recollections from the answers I got from my data collecting. What has been difficult when I have compiled the results is to convey the outcome of the case 1 and 2 in a similar way. The reason is that the answers to the questions have been very different from the case 1 and 2. In the same group, the responses have been almost identical. However, I do not see this as a problem. The aim was to reflect Spanish teaching with technical devices, not to get ‘match’ answers to the questions.

4.1 Case 1: With Technical Devices

What emerged was that computers are largely used for training the skills, and grammar. Some schools use computers in teaching as often as possible and there are scheduled hours indicating the disposable time in the computer lab. In addition, some schools have a kind of “Knowledge Portal” to which the students can go spontaneously, or it can be booked in advance. In order to develop their comprehension for the language, the pupils can work with programs written in the current target language and train all the skills they need without having different levels in mind.

4.1.1 What is the purpose or goal of the lectures?

The goal is to learn Spanish relative to the syllabus.

4.1.2 Which devices are concerned with the lectures?/Describe the behaviour and the instruments with which the activity is pursued

Hardware Devices

During the class reviews, it is common to use a computer connected to a projector as an assistant for the teachers’ teaching. This constellation is also used in other ways, which implies teaching methods based on the pupils making presentations. One drawback, claimed with the use of computer and projector in this way, is concerned with being very time consuming due to long setup.

“ICT simplifies tiered work in highly heterogeneous groups (linguistic), it gives a completely different relationship to the target language countries’ and current events.”

In some schools the computer support were widespread and did not included all language units within the school; and in those units there they felt lack of such device, there was a wish of having expanded access to ICT. In other schools the access to an own computer lab had become a reality just recently and contains so-called CALL-programs. One program some of the schools use was Tandberg-system.

“The students are working much focused on the computers and focus more on their own learning than on what happens around them in the classroom.”

The quotation above is from an answer from the questionnaire. I think the quotation is interesting by the fact that from what I did observe, I suggest the opposite. Well, might be unfair because it is truth to same instants. The majority of the pupil I observed worked really focused on their computers; but not all of them focused on the actual task, because they found other ‘tasks’ on the computers being more interesting.
Even thought all schools appeared to have a good ICT support, all agreed that there could be much better:

“All of this requires that the school has a smooth and good access to ICT, which we do not have today. But we keep in hoping ...”

“What school managers and politicians do not understand, is the interest phase of ICT in language teaching for our part is over for a long time ago - now we are in a realization phase, which costs money.”

While some schools did not only saw it as an asset with projectors as a assistant for the teaching, that assistant was exactly what many other schools wanted to have to a major extent. Other technology that was putted on the wish list was digital camera WHY.

At some schools, it was argued that the computers should not be used as a tool for teaching in groups, but always in private; at home, for instance or at personal computers around the school. One school also claimed that a bonus with the use of computer is that all the submissions’ layout looks attractive, compared to hand written layout.

**Software Devices**

Some of the schools use the textbook Vale and related CD; and so did the observed school. On the disc, there is a program with sentences from the text with missing words, which have to be completed or it might be to translate sentences. To my knowledge after having tried the program, it is very easy to install and learn. Its structure follows the structure of books. It is based on certain paragraphs from the book to be drilled in able to, then, fill the right words in, into the existing gaps. Personally, after having tried the program, I believe that it better reflects the reality used with the lower difficulty. The lower levels give the user the opportunity to practice on its analytical ability when trying to see, for example, which verb or adjective is missing. Using the maximum severity it is most about testing what the user remembers from the textbook, rather than to see how well he or she can use the language.

“The problem with this CD should be that we have to reinstall it every time we intend to use it. A procedure we, before, had to do only once. I don’t know why this happens.”

**Online and Mobile Devices**

Some of the schools are working with the pupils conceptualizing they are often looking for information online, at school or at home. With the help of Internet, material, planning, schedules, and so on, can be reached and viewed at distance. Portals used regularly at some of the schools are First Class and Ping Pong. One of the advantages here is that lost texts and materials can still be reached. To ensure the continuity of the work some teachers sought after more so-called (virtual) ‘language rooms’ which is similar to the ‘knowledge portals’. Other software mentioned in the wish list, and that some of the schools already use as assistant for the teacher, are E-Journal, OnLive (or OnLIVE), and eTwinning. E-Journal is considered a system based on modules enabling publishing, managing, and allow controlling the organization’s journals. OnLive is a, as it was described, by one of the schools, an innovative communication product which allow the user to communicate through chat and via a web camera. ETwinning (eTwinning) is a system there schools can collaborate in a cross boarder context and is an element within
the European Union’s e-Learning programs. The vision is to deepen the ICT-collaboration with other European schools.

To assess students’ skills, Urkund is used in some cases, to which texts can be sent to undergo a quality review. In this context, quality should be seen as the extent to which the current text is personal made.

ICT simplifies tiered work in highly heterogeneous linguistic groups; this gives a completely different relationship to the Hispanic world and current events. The ability to watch or listen to programs, such as from Utbildningsradion, The Swedish Public Service and Educational Broadcasting Company Ur), directly via the computer will facilitate and enhance efficiency in the classroom. This approach also gives greater variety of teaching and learning. A couple of schools claim that many of their students are working voluntarily, and singly at home, through the school’s language links. It has now becoming easier for the students to participate in exchanges programs where cooperation does not require a physical movement that will cost money.

“The asynchronous work is very important and the capacity to collect student work through the mail and send them back with comments. The students are more focused working at the computers and focus more on their own learning process than on what happens around them in the classroom”.

“The ability to watch or listen to programs (such as from Ur) directly via the computer do facilitate and enhance efficiency in the classroom. It also gives greater variety of teaching and learning.”

Several of the schools are using software from Ur, available free of charge at the Ur’s website. The site calls SPRK and includes other languages through a common approach. The site is for those seeking to learn a new language “in an entertaining way” and to “test their skills and also learn much new” (Ur, 2008). To cite one example: there is a moment called Decora. In this moment, a place should be furnished by instructions in both audio and text. The program is very easy to use and allows the user to hear both the sentence and read the sentence, and then select a number of options. If the person in the picture is asking for a square, yellow table, there are both different furniture and various tables in a variety of colours and shapes to choose.

It have been mentioned from two of the schools that they plan for buying teaching assistant through cell phones involving a company being in a development project concerning such assistants. The motivation for this implementation is that the pupils' documents can be corrected digitally; and this digitally approaches “is a part of our daily lives.”

4.1.3 During which preconditions in terms of factors such as time and place of activity, take the lectures place?

“Normally the lectures take place in the classroom (literally) for one hour. Sometimes they are scheduled morning time and sometimes afternoon. It can be at the beginning of the week and at the weekend. It depends on other lectures and classroom accessibility. However, I can tell middle of the week is a better time than Friday afternoon.

My physical observation took place Monday forenoon and most of the student were alert during most of the lecture working with the computers and related CD. For reason above there still were some disturbing moments.
Normally one teacher runs the lecture with the textbook as basis:

“Sometimes we can invite a speaker or international student talking about cultural matters. It’s also a great opportunity to face the language in another way and with a different accent. It might also be interesting for the pupils to hear another person’s telling on the same matter.”

4.1.4 Which beliefs and values are attached to the lectures?

“All people have the capability of learning. Some of them maybe do it faster. Some of them would feel more comfortable using pen and paper while others prefer being assisted by computer.

4.1.5 How do you measure the results/outcomes of the lectures?

“A written exam where the pupil needs to attain a passing score is the common form. It would be an easy way of measuring what needs to be improved and not.

“Through the preparation I as a teacher can know what was done at home.”

“It would be fine with more of a program there you could put the pupil’s skills and pre-skills and then make up a sort of a graph or so called learning curve. However, by know we are not there.”

4.1.6 How do you give feedback to the pupils?/How does the turn-taking look like? (Who speaks to whom, about what, for how long)

From what I observed, I could see that the teacher was trying to help the pupils by playing a background role. That is, to not make the pupils nervous or disturbing them by walking around too much at their side watching, but keep the distance to the computers.

“Through the preparation it would be possible to notice what have been learned and thus giving the pupils feedback”

“With the concept of online-learning and portals the pupil can actual see by him/herself what needs to be improve.”

“There is important to give bad and good feedback, but always give the bad in a good mode. It can be feedback during the lessons by a turn taking that implies answering and questioning by both teacher and student. It can also be in an individually way written or orally.”

4.1.7 In which way are your methods reliable in order to make the pupils aware of syntax, morphology, phonology, non-verbal communication, and ambiguity?

As I stated earlier, one major concern with the use of computer based program to learn, would be related to these concepts in 4.1.4. In ‘Vale’, it was the natural inertia in terms of not being flexible in the choice of answering to certain question, as the computer would have done it. For instance, if the textbook says comprende (he understand), the answer cannot be entiende (he understand). This is correct since the textbook actually says comprende. However, a common way to say it, in this respect, is by employing this second term. Therefore, it would be fruitful putting a note in the program just to let the user know the syntactic correctness in his/her choice.
In the named program, the pupil did not use any headset to practice the pronunciation or some such. Using a headset could be a good way of hearing the sentences while trying them out. As for ambiguity, in this level from what I could observe and investigate, it was not much about it at all.

4.2 Case 2: Without Technical Devices

4.2.1 What is the purpose or goal of the lectures?

“The aim of the lectures depends on the pupil’s pre-knowledge. No matter which phase the pupil belongs to, the aim is always to incorporate the culture and the behavior surrounding the language. This is done by giving examples from the society and how to put the words in different contexts.”

“Considering two ‘normal’ classes, the first part contains grammar, and the other conversation. The grammatical part is based on the assessment from the teacher has done on the pupil’s knowledge. The conversational part is based on a theme that can vary for each day. The idea is to practice in major grammatical elements without, for that matter, has a so-called ‘vocabulary-learning’ where the individual, isolated words are repeated. In order to have a few concrete examples:

The second part can be made up of a theme. It might be lyrics, about alcohol drinking, prejudices, folklore, or sex education in schools. In the case of alcohol consumption, it can be a text presented with different facts, views, claims, and such, and at the end of the text, a saying or joke can be enacted. The pupil is then given a number of questions in relation to the text that was then debated back and forth along with the teacher.”

4.2.2 Which devices are concerned with the lectures?/Describe the behavior and the instruments with which the activity is pursued

Hardware Devices

As a support for the teacher’s decision-making, there are computers in the teacher’s office where the teacher can type in the status of each pupil and what they have gone through at the classes. The computers are not really used as an instrument for teaching and learning, however, if it is necessary and adequate, they can be used to show the pupil a specific issue in order to let him/her understand better.

The schools consider important having knowledge about not just the language itself, but also about all these contexts in which the language does a part. These contexts incorporate knowledge about culture, folklore, identity, and etcetera. They also take into consideration that “different teachers have different ways of speaking and acting”; thus, they change teacher, which give the pupil “insight in different accents and ways of employing the words.”

4.2.3 During which preconditions in terms of factors such as time and place of activity, take the lectures place?

“Usually the classes take place in the classroom. Nevertheless, there is still a possibility of bringing the classroom out to even more directly contrasting the language in the real world. In the private institute this may includes making a trip to typical marks that characterize the country, to restaurants, museum, or just stroll around in an effort to familiarize the pupils themselves with the language from different perspectives.”
4.2.4 Which beliefs and values are attached to the lectures?

“In order to teach the teacher has to be sensitive to the pupil’s ‘cultural situation’ to know what topics can be talked about and from which perspective. This will also make the pupil learn better and faster.”

In one school, the classes take place with a small amount of pupils in each, if it is not private classes. This is based on that is probably easier to learn if the pupil can have the teacher’s attention and converse more directly, and the teacher can focus more on each pupil. However, more common is that the teacher has to deals with a larger amount of pupils.

In some classes, each pupil has their own writing surface and materials, in the form of, for instance, stencils, books, or other texts, which are necessary for the given occasion. In other, all uses the big blackboard.

4.2.5 How do you measure the results/outcome of the lectures?

“The lesson allows a coordinated assessment of different communicative aspects:

- the pronunciation can be measured
- the teacher can be aware of to what extent the student has understand the system of the alphabet
- consonant vowel combinations existing in the language can be highlighted
- work to avoid the development of fossilization of errors can be done
- helping to apply the correct verb tone and not only explain ‘why?’, but also make practical examples of similar words such as deferred which would help students to avoid repeat same mistakes.
- working with what is the vocabulary and encouraging the acquisition of new words and synonyms
- gradual learning of idiomatic phrases and periphrasis
- increase the field lexicon, as well as you can work with the words in different contexts
- You can work with the words in different contexts
- Revise the grammar

Another item that is evaluated through the lessons is clearer understanding of what is read. It can be programmed questions to guide the student to break down the affairs of analysis of the studied material, as well as promote oral and written expressions of a particular subject. It improves himself what is the field because the auditory student will be able to increase their level of familiarity with the melody characteristic of the language.”
4.2.6 How do you give feedback to the pupils?/How does the turntaking look like? (Who speaks to whom, about what, for how long)

“Considering the element of turn taking, it emanates from having more of discussion character than a fixed scheduled which cannot be changed, but without losing the main theme.”

When the pupil makes a mistake it is not always corrected depending on how serious, the mistake is. By waiting to give feedback, the teacher gives a chance to discover, for instance, if the same mistakes are committed in certain contexts. The pupil, for its part, may have the possibility of self-correction. This is an ongoing process, which takes a sense of balance.

4.2.7 In which way are your methods reliable in order to make the pupils aware of syntax, morphology, phonology, non-verbal communication, and ambiguity?

As announced before, here the lectures are not very much concerned with technical devices at all. Since the lectures are performed orally it will be “quit easy to make the pupils aware of sentences and utterance with more than one meaning” and how to apply and employ the words. The pupil can hear the teacher speak and be aware of the non-verbal communication while speaking. The lectures stretch over a big area including music, the very day life, history, and etcetera. By this the “pupil can know how the roles are accepted in different contexts.”

4.2.8 Which device is most important in order to teach and learn Spanish?

“Considering the most important device in order to teach Spanish, for that there is no absolute answer. If we are guided by what is the eclectic method, an educator will use all possible strategies and channels to help their students learn significantly. However, the Internet plays a major role. Traditionally the language lessons are relegated to the maximum of two to four hours per week. In this case [without Internet], learning and practice are limited to the classroom, which is why the Internet could work as a tutor for learning and practicing the language. For example, there are Web sites where you can read and listen, and media that will record the voice and measure if the voice goes according to the melody of the language. There are also a plethora of exercises to which can be accessed free of charge and have simultaneous correction. There can also be teachers who write back with the appropriate corrections”.

“That’s my humble opinion; I think the Internet opens doors to languages. In addition, without the Internet it would be much more difficult to teach and learn.”

The reasons for not using technical devices are lack of sufficient resources. There is no language laboratory with enough computers to allow access to the Internet. The same is to be considered the media that is mandatory in order to work. Therefore, the students come up with good level of grammatical structure is in most cases because the direct method is used to teach, but very lacking in emerging vocabulary and level of understanding.
5 Analysis

5.1 What Technical Devices are used and in which way may these devices enhance the education process?

*Computers* connected with *projectors* are used to assist the teachers teaching and the pupil’s making presentations. Computers are used to training the skills, grammar, and write term-papers. Some schools use textbooks, which include CD with program related to the book. From what I have observed, the use of *CD and textbook* has no any further future potential in its current form. It would be too complicated re-installing the program every time. The CD software program has to be re-built to better correspond to the curriculum; that is give knowledge about the Spanish language. As this CD connected to the textbook *Vale* works now, it rather stunts the learning process. In this case it is required regard the software as a cognitive tool (Schwartz, 2008), and by that, focusing on how the language is used in real life. With this way of thinking, it would be possible having software closer to reality, which can be better used in relation to the curriculum.

Something that several schools say, which highlights the reasons to have computer support in school, is that it would be easier personalize the teaching with such devices. It should be noted, however, that it is not all good in terms of ICT in classrooms. One obvious problem in the current school is the design of computer rooms. The computers are placed in groups of four to five computers. During the visit, it was clear how the students sitting by themselves focused more on the given task than those sitting together. A proposal is to place half of the computers in rows. That would allow the user to sit alone, either with certain distance to the next computer or with a screen in between. This, among other things, would give the students, who can get a little more difficult to concentrate, a better chance.

*Internet* and *portals* as First Class and Ping Pong, *virtual language rooms* as E-Journal, OnLive, and eTwinning, provide searching online, uploading texts, and searching through information relative to the subject. These portals also provide connecting with people in other geographical areas.

*Software programs free of charge*, for instance *SPRK* from *UR*, enable the pupil playing pedagogical games. To the actual teaching hours, an online time can be added which would enhance the effective educational time. That is, the pupils can be at home, with friends, for instance, using Internet and learn.

*Urkund* is a subscribable service to secure certain quality of the submitted texts; quality in terms of not being plagiarized and suchlike.

*Cell phones* are planned to be used to assist the teaching. These devices may enable not only better communication: the teacher can also work at distance correcting pupil’s digitally submitted files. A deeper use of cell phone in direct relation to the education is hesitant. As a medium to which it will be possible to download lexicon and ’smaller program for practicing vocables and grammar, this would be easier to grasp. Since the use of cell phones also is notable in the lower ages, it could be a funny way of practising the language inside the school as well as outside.
5.1.1 Categorizing the devices

From what I observed and according to the answered I received, the schools mostly use the technical devices as technical tool. For instance, the textbook has a belonging CD, and therefore the computer is used just to make the CD work. There are also pedagogical online games. Nevertheless, the technology does not seem to be used in a deeper way incorporating constructivist learning, why the ability of enhance the cognitive powers of pupils will get loose. Thus, one claim would be that the technical devices are used in forms that call to learn from technology. Regarding the two heads of teaching, formal and informal, the schools of Sweden very much fit under the first head, formal teaching. The school of Hispaniola on the Dominican Republic belongs to the second head since they do excursions throughout the country and by that action learn about various landmarks and culture; that is informal teaching. To some extent I was told that the school in Huskvarna sometimes invite speaker to talk about their country. I claim, however, that this will not happened to such an extent that it would be regarded to informal teaching.

Bruce and Levin’s (2003) redefined Dewey’s four-part taxonomy. By using pedagogical online-games as UR’s SPRK, for instance, the pupils will be able to achieve some communication but not in a deeper way reconfigure the relationships outside school. Working with this program and web site will be close to using other search engines provided on the Internet and by that continue to explore the world and the phenomena inside SPRK, but in a broader context. For instance, there is a part where the user can learn sentences and jargons from different Hispanic parts. This part might increase the curiosity for this particular country. What I think is missing is that none of the words in SPRK are hyperlinked which, if it had been so, allowed the user to click on a particular word or sentence to learn more on this country, costumes, or whatever. Such an approach had allowed expression of thoughts for the comprehension of others since the program in a more considerable way had touched the real life. To ‘communication’ there are four sub-categories. What regards to Hispaniola, in this school they worked very much in a communication-way but without that kind of technical devices. Instead they used tape-recorded and printed the papers out. Document preparation in this context could incorporate the CD Vale in which a major part is grammar and style. Some schools also mentioned the connection between the pupil’s handing-in and the ability of sending in these tasks by e-mail or downloading it to a portal. Because of various e-mail system there is possibility of having direct communication with people within and outside school, and the portals can be regarded as some sort of communities in this respect. Thus, there are possibilities to have good communicative relationships inside as well as outside the school. Collaborative Media is an interesting part by the suggestion of allowing collaboration with same task but without being at same place and work with it at same time or just work on it slightly. Being in a live room, that will allows working slightly, alone or group wise. Portals mentioned are First Class, Ping Pong, E-.Journal, OnLive, and eTwinning. An enhanced form of collaborative media does not seem o be used in none of the school. None of the schools showed up multi-devices; devices that really helped the pupil to work together. That could be tasks designed to share drawings, text, and sound both in a direct way and in a digital way. Then, the technical use had become more of cognitive approach to technology. Teaching Media have already been announced: CD Vale and UR’s SPRK.
As regards to expression, it was mentioned that pupils can use projectors connected to a computer. This constellation makes, with a presentation program, modes of self-representation possible. Making presentation in this format, it will make it possible to show the pupil’s creative side as well. In some live room and portals, it is possible to while chatting with others make drawings. One example of such is Fronter. It should be even better, however, with a portal that also takes account of music, animation, and multimedia. The school should think about a digital room that knows more than just uploading of documents, chatting, sending e-mail, and etcetera. This digital room should also regard and enhance pupil’s interest of expression. Thus, the pupil or teacher can express his/her own thoughts for their own future comprehension.

I observed lack of regard to inquiry. One way of include this third part of the four-part taxonomy, is to involve some sort of authoring. These programs enable put together text, multimedia, hyperlinks (with connection to Internet) by just linking together the parts. In these programs, that is also possible to create pedagogical puzzles or game. It can be games related to the subject in the program. This is a way of increasing the inquiry-part. They are different authoring tools of course, but with these tools, it becomes possible to make programs or games focusing on the analysis of settings, characters, plot, or on various discourse mode. By the use of hyperlink, the pupil can reach a database in order to check word, pronunciations, and etcetera.

Construction of micro-words are something that should be very adequate in this context since Spanish learning Sweden takes place outside and far away from the Hispanic world. Such a micro-words discussed here could enhance the feeling of the Caribbean, since I here make that distinction. Micro-words are something more schools in Sweden should put focus on. Such an approach could enhance the pupil’s curiosity, self-expression, feeling for the language, they could also alone or within the group test their hypothesis. This approach combines many of those elements found in the other parts of the taxonomy.

Productivity tools: Word processor and programs for presentations together with projector are used. Normally, however, the pupils use word processors for their handing-ins and the teachers use the projector for teaching.

Telecommunication tools are used in an early stadium (cell phone and digital camera) and some teacher want to see more of that.

Learning tools. I did not observe any and it was not any suggestions for using them.

Management and support tools. Some of the teachers use spreadsheets and word-processors in order for them to organize the teaching. They do not use any expert-systems to enhance the decision-work.

Authoring tools. Not in use.

Programming tools. Not in use.

Collaborative tools. Live rooms and portals.

5.1.2 Cognitive Informatics

From Moore (2005) fourteen concepts relative to SLP were outlined (see figure 3-1). From what I noticed, the concept of artificial intelligence was not adopted largely. For
instance, the program Vale would probably be more practical to use with these thoughts. The problem, then, would be to be able to “understand” that it can be reasonable for the pupil to adopt a certain word informant of another. Then, the program can make explanations. The program could also be better to analyze one pupil’s development and put more focus, individually, on how this particular pupil should try to work. Thus, the “scaffolds” can become more adaptive to the developments in the learning process. Also, in some way be able to do understand how minds are thinking. The ‘principles’ (5.1.2) regard to enhance learning and be reflective. One of the questions for this thesis was how technical devices may enhance the education. Incorporating artificial intelligence, thus, would be fruitful since artificial intelligence in education may increase positive interactive experiences for pupils and enhance learning (Looi, ed. 2005). In a language context, that would be an advantage taking account on natural language processing as well since it deals with processing issues at all levels of natural language understanding (Boden, ed.). In a context incorporating learning, understanding, technology, the mental faculty play a crucial role. This discipline could provide better understanding for communities and their language. If the goal is to learn pupil language, history, geographic, it seems reasonable to point at psycho-linguistics aspects of education. This aspect can in addition, and in this context, gives better understanding of Spain's multiethnic and multilingual make-up (Turell, ed., 2000).

Adopting technology as the Swedish schools studied do, that would be to open doors allowing the pupils searching for information in more places than just in books retrieved directly from the teacher. That also provides searching through search engines, portals, digital libraries, and etcetera, to fill their needs of information (Goh, 2008). Therefore, a considerable regard to information retrieval should be taken.

5.2 In which way do the devices influence the power and the communicative relationships relative to the education?

5.2.1 The Principles

MacVay et al (2007) laid down seven principles of which I outlined three. Applying those regard to communication between artefact and human being in the classroom, that would gives following:

The first principle. Adopting a technical approach to teaching, in that way some of the Swedish school did, may strengthen the in and out contact of class of pupil and faculty. Portals and virtual rooms may provide access to documents and chat-rooms at distance. In addition, communication with other schools on a regional, national, and international level can be conducted. That may enhance the teaching hours and give stimuli to the pupils, since they can take part in different ways. Another example, a mobile approach to education will “extend” the classroom since this approach provides access to document at distance. For many youths, cell phones are rather a device that calls for, considerably, more than making phone calls. An approach that allows using them outside classroom in an educational and pedagogical manner, would take account on the factor calling for motivate and involve the student.

The second principle. Whilst this technical approach is ongoing, the importance of collaboration to keep up with the goal of spreading and transferring information and knowledge must not be forgotten. A technical advance to a mandatory educational system might discourage many as in same time many may welcome such an advance. This
give strengthen to that of pointing out the importance of collaborate and, thus, regard different aspects and sides of technology.

**The third principle.** Adopting technology in school may enhance the learning process since the pupil can become more active. The pupil can work with the tasks in more situations, not only in the school; for instance, through the Internet in the home or in the library, alone or with friends. Nerveless, regard must be taken on how the pupils are given opportunity to reflect over his/her situation. Not just to let the technology bump up too much inside everyone. Still there must be a clear relation between teaching devices and the learning process itself.

5.2.2 **A Noise Factor**

I partly agree with Schwartz (2008) that the problem is that schools do not know how to handle the technical devices in the classrooms. I believe that some of the problem lies in what I name ‘noise’; that is, those things in between the ‘useful’ (technical) devices and the (necessary) issues around (see figure 5-1). Examples of such objects are a program that was installed on a computer, but for another purpose than for the current situation.

Other type of noise is about the additional setup and lead times as technical devices create. An example is how many of the students wanted to explore other things, in relation to technology, before they were to start. To become contradictory, this is not needed to be a problem. If this ‘noise’ can be launched in Spanish instead, rather, it will be an extension of the lesson, which might be a good thing. Another side of noise is workstations (i.e. computers), only placed in groups, and thus, without any possibility for the user to work alone.

![Figure 5-1 Noise in Spanish Teaching](image)

In the introducing part, it was mentioned, through the prior research, that we should be aware of communication, cognitive awareness, and culture. We must in this context regard all the technical devices as communicative devices. Thereto, we need to be aware of its impact, both on ourselves (the teacher), and on the people we encounter (the student). We must not only see the technology as a cognitive tool (Schwartz, 2008), but also reflect more carefully over what stance we had taken on board without these tools.

5.2.3 **Interaction, Language, and Learning**

The question and answers in 4.1.4 and 4.2.4 are concerned with cognition and communicative aspects. The answers give a small indication of that ‘Case 1’ thought about capacity and increased learning process, while the ‘Case 2’’s answers indicate culture and identity. That could give a ‘Case 1’ more concerned with Vygotsky’s interactions emphasizing the importance of social interaction to develop a language (Daniels, 1996).
This can also be related to the theory of Angeli (2007) stating the importance of being aware of the individual cognition and social and cultural implications.

Regarding Wittgenstein’s ‘community’ as a communicative platform as a choice which comprises use of technical device should be more concerned with how the learning process advances due to the role the community plays during the language analysis (Allwood, 1995). By adopting Austin’s and Searle’s approaches to language and communication, any idea of using technical devices in language teaching or in any other social context, must comprises cultural thoughts since speaking, writing, and communicating are species of social action (Allwood, 1995). Neither would this be far from the thoughts of Schwartz’ regarding technical devices as cognitive tools (Schwartz, 2008).

5.2.4 Speech Act-Aspect and Other Aspects on Communication

By, once again, regarding the CD to the book Vale, we must claim that we cannot have a symmetrical relationship since the software do not accept any attempt to employ a (correct) synonym and the user cannot do anything to influence this (Allwood, 1980). If the use of synonyms can be regarded as something with ‘meaning’ (Allwood, 1995), that is, useful in terms of giving the pupils a bigger vocabulary and a better understanding for the language, the software’s meaning will here be decreased. In this respect, ‘Case 2’ has an advantage by not using technical devices. This does not automatically give an approach comprising a symmetrical relationship; but if the lecture take account on the “pre-knowledge, and has “more of discussion”, for instance, this lecture holds potential to become symmetrical. This is the reason why it is more important to be careful of how the lecture proceeds with technical devices. In this approach, there is not only two parts – teacher and pupil – (might in some respect be regarded as transmitter and receiver), but three (e.g. computer). This could be one reason of why regard technical tools as cognitive ditto (Schwartz, 2008). In ‘Case 1’ there was an example of how the computers may make the pupils loosing concentration on a given task. This was also mentioned in 5.2. The table below would be one way of illustrating this:

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Pupils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locutionary</td>
<td>“Run CD Vale, please”</td>
</tr>
<tr>
<td></td>
<td>Starting computers (and watching other stuffs)</td>
</tr>
<tr>
<td>Illocutionary</td>
<td>To see what the pupil remember from the text</td>
</tr>
<tr>
<td></td>
<td>Run the program as the teacher said</td>
</tr>
<tr>
<td>Perlocutionary</td>
<td>Irritation</td>
</tr>
<tr>
<td></td>
<td>Watching other stuff as well</td>
</tr>
</tbody>
</table>

Figure 5-2 Speech Act as acting

Worthy of notice is that I regard ‘acting’ as ‘speech’. The point here is that the teacher says something, and wants something with this utterance. This will have an effect on the pupil. The problem here, however, is the third person, the computer that also affects the pupil. This impact will be mixed together with the “original” impact. In figure 5-2 ‘perlocutionary’ are also concerned with a slower learning process since the pupils do not focus on the matters, as they should have done. This way of regarding the speech act theory will easily indicate some of the problem with a technical device. If this third “person” had been a human being, it should be able to communicate and to a certain
pedagogical degree influence the perlocutionary force. This effect shifting could be seen in the light of ‘noise’.

5.2.5 Power and Relation

As a relationship said to hold between two or more persons, it seems, for this thesis, be logical to propose there exists a third ‘person’. In this aspect, it could be a technical device, such as a computer. Reading research on this issue, these authors argue for the important role those technical devices have and how important that is to be able to know the computer's ‘thoughts’ and know which role it plays; and why it plays that role; and maybe if it should play that role. Thereby, this could be referable in several respects to what Allwood (1980) names asymmetrical relationship. According to what was outlined in the introducing part (table 1-1), we need to take control over such technical devices and not vice versa. In several respects there are risks that the teachers will be the subdominant one in comparison to the technical devices; and noteworthy here is the increased risk to not only have an asymmetrical relationship, but also a total asymmetrical power relation (Allwood, 1980). Summarizing, we have to be aware for how admitting dominance or subordination to maintain the grips with the situation (e.g. the usage of tech. devices).
6 Summary of Conclusions

Which technical devices are used?

The main device is computer (i.e. PC); some of them in network providing access to the Internet. In this aspect the most common programs are portals and virtual rooms such as First Class, Ping Pong, E-Journal, OnLive, and eTwinning. Other hardware used together with PC is projector and camera.

In Urkund the pupil’s texts can undergo a quality review, this to prevent plagiarism.

A newer approach seems to be cell phones.

The devices are mostly regarded in a ‘traditional’ manner, as technical tools and not as cognitive.

In which way may these devices enhance the education process?

With cell phones, the teacher can be active while travelling. Also pupils could get connected and download schedules

By using the approaches in the previous question, an additional time can be added to the lectures since the pupils can work at home, reach document from everywhere, and learn by themselves playing pedagogical games, for instance.

One problem lies in what I name ‘noise’; those things in between the ‘useful’ (technical) devices and issues around. The differences between having technical device and not, is not clearly investigated.

In which way do the devices influence the power and communicative relationships?

If the goal is to have a symmetrical relationship between teacher and pupil, it might be difficult without taking careful account on the technical device in use, and perhaps regard them as cognitive tools (Schwartz, 2008).

Regarding communication and the classroom, any individual in there should be seen, as an individual. That is, everyone has different abilities and different basic conditions. If we have a look from a wider angle, we can relate to the world in which language skills should be placed. Regardless of the basis or perspective we choose, it is easy to understand that a technical approach to language teaching cannot be made general, but should be individually as far as possible. In order to understand how each one responds to the technology that should be used for acquiring the language, each individual in the classroom must also be there in harmony with each other in the same. This is very much about taking the concepts of power (Allwood, 1980) into consideration and not see the technological device as a stand-alone part, but as something that should be used with full cognitive awareness on how to best be communicated to all in the cultural context (i.e. the classroom).
7 Reflections and Discussion

As the CD Vale concerns, I believe that, remembering a few passages from the text does not implicate understanding of the meaning of the words, neither what the paragraph really is about. For this reason, I think that these different levels should have been divided into different parts: One part that include the linguistic ability, and another to see how well the user has read the relevant paragraph of the book.

When creating program for language purpose in school, it should be done from a perspective that allows the pupil to work in a “natural” and realistic way. Instead of the users (e.g. the pupil) adopting their behaviour to the program’s situation, the program should adopt to act as human beings normally do. That is, the program should adopt an assimilative behaviour instead of the accommodative. This seems to be truth for every teaching device in education and thus takes a cognitive regard.

I claim that in the classroom, the teacher should be the dominant one; and in the same time, achieve and maintain a symmetrical relationship. This relationship must also hold on to the technical devices. Those devices must be integrated into a positioning thinking (Yoon, 2008) in accordance with the other actors in the classroom. If we do contemplate 'cognition' as something that all players must be aware of, human and technological, we have to assist those technical devices to reach this awareness. Then, it will be possible using them in a required manner in teaching. This is very much about one side of implication of distributed cognition (Yudkowsky, 2006; Schwartz, 2008).

As an interpretation of Schwartz (2008) paper, I believe that is truth that the use of technical devices, which are used to achieve higher knowledge among teachers and pupils, can be successfully only with a deep understanding of the way learners construct meaning together. It is also necessary having an understanding for the human cognitive architectures as well (i.e. socio-construction). With other words, there has to be a link between information and knowledge to understand the way the pupil acquires Spanish.

I see that the differences between having technical device and not having them, is not clearly explained. I derive the statements on the differences I observed from my observations in the Caribbean. Among those I spoke with, there was a desire to have more technology into classrooms. At the same time, which may give further questions, they were very clear of how they should conduct a good education for the pupils in order to give them relevant knowledge within the given time, and within the established framework. In Sweden, it seemed rather as if some schools wanted to use the technical device to avoid extending their pedagogy, while those in the Caribbean seemed to suggest that an already well-functioning pedagogy could be even better with technical devices. When teaching Spanish, the teacher should be clear of that the technical devices that can increase the communication, used in wrong way can affect the teaching and lead to deterioration of the pupil’s ability to learn. A device that otherwise would have been to so much help, can inhibit the student's learning and get him/her to pay attention on wrong issues.

7.1.1 The World in Three Pieces

The world can be studied from three levels. I have taken Schein’s (1985) model and redefined it. Here, ‘artifact’ should not be construed as 'error', but for what is described below.
Artifacts (most visible): According to Schein (1985), the first level, artifacts, is the most visible, but not always easy to deal with. In order to understand an artifact, we must understand its importance, which is close to Schwartz (2008) ‘cognitive awareness’. We also need to bring the artifact into certain context, because its intent is not static or always quite explicit, which seems to be concerned with Allwood’s (1977; 1980; 1995) ‘power and communication’, and ’speech acts’. In principle, these artifacts include everything (e.g. computer, software, projector).

Interaction and norms (values) (visible): The second level has to do with interactions and relationships. That is to say, how artifacts interact with each other and humans, how humans interact with each other and artifacts, and all other combinations of interactions. This level also includes how we interact with and lives up to standards and norms; which make it more difficult to visualize.

Abstraction (assumptions) (imaginable): this third level deals with, in a direct way, the interactions and norms claimed in the second level. That is, terms and concepts as ‘power’, ‘structure’, ‘usability’, ‘dominance’, and etcetera. In this case, we can regard to the meaning of using technical devise in the classroom. We cannot see the meaning, but we can imagine how it should be.

7.1.2 Art

Technical devices and the use of them could be seen through the same eyes as Sven- sen’s (2000) ‘kunst’ (art). According to Plato, art is something created by man’s need of self-expression. The art is not a product of knowledge, rather, of inspiration. Accordingly, the art is irrational. If we presume a similarly view on technical devices, and through my interpretation, it gives, the technical devices are used to show that we have access to them and due to our inspiration of use them, rather than that we have knowledge of how to tackle them. Technical devices are irrational, but our use of them is rational.


8 Criticism against the Thesis and Further Discussions

In the first place, it might be that I did not define a clear problem at the outset, even though if such a problem was possible to discern from the 'Introduction'. This makes it a little more difficult for the reader to understand the basic assumptions. To make it in reverse, in order for me to not being too rigid and designed from the outset, this can also be seen as strength letting the problem grows up.

I have attempted to be both analytical and reflective. That is not easy and at the same time being clear. However, I think it is important to try to adopt these two stands at the same time as I explained in 'Method'.

Although the base of the paper is Informatics, emerges the other disciplines. This may be difficult for a reader who is familiar with one discipline only and the approach that applies within it. The strength with this approach, however, is that it is a better reflection of the reality. The reality is rarely either-or, one or zero.

As laid down in 3.3.2 and 4.1.4, for instance, my intention with the thesis was not to reflect on-line teaching. Now, afterwards, I realize, however, that it would have been extremely interesting. There are several reasons for this: Teaching through the Internet and mobile phone should be seen as a natural continuation of the trend. In Sweden, distance learning for long has been a reality, and in these days, it is possible to read courses in, Informatics, radiation physics, and Spanish at distance. It is possible to read full programs, such as teacher’s education and nurse at distance.

As regards the economic aspects, it was suggested among schools in the Caribbean that there are more and more people having access to both the Internet and cell phones. Can education be supplemented with such medium; it can probably be easier to implement an education for those having difficulty getting to school, in that they can meet on their home in front of a single computer. It will be even easier for those who do not have the opportunity to study abroad to still get credit from other types of courses than those which are locally rooted.
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Appendix 1: Questionnaires in English and Spanish

English

When responding the questions, think about your principal method used in able to teach your pupils Spanish. (the apparatuses, environment, classroom, resources that provide classes, etc.). Consider two “normal” lectures (approximately 45 * 2 min) and take following questions into consideration:

A

1. What is the purpose or goal of the lectures?
2. Describe the set of roles belonging to the lectures
3. Which devices are concerned with the lectures?
4. Describe the behaviour and the instruments with which the activity is pursued
5. During which preconditions in terms of factors such as time and place of activity, take the lectures place?
6. Which beliefs and values are attached to the lectures?
7. How do you measure the results/outcomes of the lectures?
8. How the turntaking does look like. (Who speaks to whom, about what, for how long)
9. How do you give feedback to the pupils?
10. In which way can the pupils get your attentions?
11. Do you have any topic(s) for the lectures?

B

In which way are your methods reliable in order to make the pupils aware of

12. syntax?
13. morphology?
14. phonology?
15. non-verbal communication (gestures, )?

C

3. Following sentences are examples of ambiguity. With the pupil and your main device in mind, how should you explain/solute these two sentences:
   a. Estuvo arrecho por saltar
   b. Ella manejó el auto de la compañía hacia la ciudad.
   c. Vimos a una muchacha con gemelos en el bosque.

4. Following sentences are retrieved from the book *Crónica de una muerte anunciada* (García Márquez, 1981) and contain idiom and quality implicature. Also with the pupil and your main device in mind, how should you explain these sentences:
   a. Hablaba con el alma en la mano
   b. No tiene precio
   c. Juega limpio
   d. Fue un golpe de gracia
   e. O te escondes aquí, que es tu casa, o sales con mi rifle

D
11. Thinking on your **devices** (not only the main device, but also every devices, technical and non-technical) within your methods/approaches: which device(s) do you consider most important in order to succeed in terms of teaching and learning Spanish?

12. Thinking on your **methods**, in which way can these methods give understanding of the meaning of the culture surrounding Spanish and the countries connected to it?

What other important factors/aspects must be taken into consideration in order to teach and learn Spanish?

**Spanish**

Al responder las preguntas, tenga en cuenta su método principal en la enseñanza de español como lengua moderna. Al responder, tenga en cuenta su **método principal** para enseñarles castellano a los clientes (los aparatos, el ambiente, clase, recursos que facilitan las clases, etc.). Imagínese dos lecciones de aproximadamente 45-60 minutos y tome siguientes preguntas en consideración.

**A**

1. ¿Cuál es el propósito u objetivo de las clases?
2. Describa el conjunto de funciones que pertenecen a las lecciones
3. ¿Qué instrumentos (dispositivos) usa en sus actividades?
4. Describa el comportamiento y los instrumentos con los que la actividad se persigue
5. ¿Cual son las pre-condiciones en términos de tener en cuenta factores tales como la hora y el lugar donde se da actividad cuando planifica la lección?
6. ¿Qué creencias y valores se adjuntan a las lecciones?
7. ¿Cómo medir los resultados de las lecciones?
8. ¿Cómo parece el turno y el orden? (¿Quién habla con quién, de qué, por cuánto tiempo)
9. ¿Cómo retroalimenta a sus clientes?
10. ¿De qué manera pueden los clientes obtener su atención?
11. ¿Hay algún(os) tema(s) para las lecciones?

**B**

¿De qué manera usted cree que sus métodos influyen en la actitud de sus alumnos de

1. sintaxis
2. morfología
3. fonología
4. la comunicación no verbal (p.ej. gestos).

**C**

1. Las siguientes frases pueden conllevar a malentendidos debido a su significación en context (ambigüedad). Cómo las explicaría?
   a. Estuvo arrecho por saltar
   b. Ella manejó el auto de la compañía hacia la ciudad
   c. Vimos a una muchacha con gemelos en el bosque.
2. A continuación le presentamos algunas frases hechas tomadas del libro *Crónica de una muerte anunciada* (García Márquez, 1981) y son ejemplos de implicatura. Cómo explicaría estas frases a sus clientes?:
   a. Hablaba con el alma en la mano
   b. No tiene precio
   c. Juega limpio
   d. Fue un golpe de Gracia
   e. O te escondes aquí, que es tu casa, o las ventas con mi rifle

D
1. Si piensa en sus dispositivos (no sólo el principal, pero todos, técnicas y no técnicas) dentro de sus métodos, ¿cuál(es) dispositivo(s) considera usted más importante(s) para tener éxito en la enseñanza y el aprendizaje del español como lengua moderna?

2. Si piensa en su método, de qué manera el mismo puede contribuir al conocimiento de la cultura hispánica?

¿Qué otros factores importantes y aspectos relacionados al tema deben tenerse en cuenta para enseñar y aprender español como lengua moderna?
## Appendix 2: Data Collection

<table>
<thead>
<tr>
<th>Date</th>
<th>Place</th>
<th>Persons present</th>
<th>Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interviews</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20/07/2007</td>
<td>Sto Dgo, Dom. Rep., Hispaniola</td>
<td>Dean Luca Pelligrini, profesor Marcia Leu-Chung (B. Sc.)</td>
<td></td>
</tr>
<tr>
<td>20/07/2007</td>
<td>La Cañada, Venezuela, SOS Children Village</td>
<td>The Director of La Cañada.</td>
<td></td>
</tr>
<tr>
<td><strong>Questionnaires</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-mail, April-May 2008</td>
<td>From 55 questionnaires, I got 20 answers that were used as pre-study. 4 of them are used in this thesis</td>
<td></td>
<td>Questionnaire</td>
</tr>
<tr>
<td>JIBS, 27/05/2008</td>
<td>Test of UR, SPRK, Internet</td>
<td></td>
<td>In side</td>
</tr>
<tr>
<td>E-mail, 03/06/2008</td>
<td>Answer from follow-up questionnaire</td>
<td>The Director of the School Program, SOS Children Village, La Cañada</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>E-mail, 27/06/2008</td>
<td>Answer from follow-up questionnaire</td>
<td>Professor Marcia Leu-Chung (B. Sc.), Hispaniola</td>
<td>Questionnaire</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
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<tr>
<td>26/05/2008</td>
<td>Alfred Dahlinskolan, Huskvarna</td>
<td>Professor Gunilla Hallgren (B.Sc.), students</td>
<td>Out side</td>
</tr>
<tr>
<td>26/05/2008</td>
<td>Alfred Dahlinskolan, Huskvarna, Test of Vale 8, CD-rom</td>
<td>Professor Gunilla Hallgren (B.Sc.), students, and students</td>
<td>In side</td>
</tr>
<tr>
<td>16-20/07/2007</td>
<td>Sto Dgo, Dom. Rep.,</td>
<td>Dean Luca Pelligrini, profesor</td>
<td>In side/out side</td>
</tr>
<tr>
<td>Date</td>
<td>Location</td>
<td>Interviewees</td>
<td>Location</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>13/07/2007</td>
<td>Barahona, Dom. Rep, Majagual Basic School, Guayuyo</td>
<td>The Directors of Plan International, Barahona, and one student and his family</td>
<td>Outside</td>
</tr>
<tr>
<td>20/07/2007</td>
<td>La Cañada, Venezuela, SOS Children Village</td>
<td>The Director of La Cañada.</td>
<td>Outside</td>
</tr>
</tbody>
</table>

Table 8-1 Data Collection