

**USING PARTICIPATIVE DESIGN OF EDUCATIONAL
TECHNOLOGY TO INVESTIGATE STUDENT'S
BELIEFS ABOUT LEARNING ENGLISH AS A
FOREIGN LANGUAGE**

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DECLARATION

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I hereby declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own.

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ABSTRACT

This study investigates students' construction of the English for Specific Purposes (ESP) classroom, that is, ESP teaching and learning, and uses the Participatory Design (PD) approach to the design of educational technology as a means to improve and refine our understanding of their construction of the classroom. The study was carried out with Brazilian university students on a Computer Science course. Following general guidelines of the PD approach, the researcher invited an ESP teacher, a number of students, and a Software Engineer to collaboratively design a Web Portal to support ESP teaching and learning. The research questions were: (i) how do students construct the ESP classroom? and (ii) to what extent does students' involvement in the process of designing educational technology for ESP bring to light different elements of this construction? Data were collected in two phases. Firstly, an initial interview was carried out and then records of students' participation in the workshops, their entries in an online diary and a final interview were collected. A bottom up approach was adopted to categorisation of the beliefs constituting the students' construction of the classroom, and the analytical framework outlined by Benson and Lor (1999) was used to help to interpret and group these classifications. The final model of the students' construction identified four groups of beliefs, clustered around the ideas of accumulation, communication, autonomy and unease with what the ESP course offered. The use of Participative Design as a method to facilitate the collection of data about the students' construction of the classroom was found to be effective in enabling the research to move from an description based on students' de-contextualised descriptions of the classroom in the initial interviews, to a more articulated and detailed level of description that emerged from involvement with the design task.

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CHAPTER I

INTRODUCTION

After teaching English for Specific Purposes (ESP) for Computer Science students at the university for eight years and conducting both formal and informal investigations into students limited involvement in their learning, I became aware of the paramount need to find out how students construct this practice. With the increasing pressure, felt by me, to both use the technology available to support teaching and learning, and to create more relevant courses as one means of avoiding the perceived students' withdrawal, this seemed to be the suitable time to give students a voice and allow them to reflect on and share their views of this practice. First of all, this would provide a broader understanding of the particular teaching and learning processes carried out in the ESP classroom and, secondly, demonstrate how computer technology can really make a difference to the lives of both the teachers and students.

This thesis explores the students' construction of ESP learning and teaching, and its links with technology. By "the students' construction", I mean the organised collection of categories of beliefs identified as being held by some students in this group. Few beliefs will be shared by all the students, individual students will hold specific beliefs, the beliefs in some categories will be at odds with those in other categories, and the beliefs in some categories may be regarded as more effective in supporting learning than those in other categories. However, viewed collectively, they represent the range of beliefs about ESP learning and teaching these students might have. I seek to investigate these beliefs, first by talking to the students, and then by involving them in a design activity in which their beliefs can be made more explicit and confronted within this specific context. In pursuit of this aim, the researcher invited the ESP teacher, Computer Science students, and Software Engineering teacher to work together to design a Web Portal to support ESP teaching and learning.

Two key questions arise from this aim:

1. How do students construct the ESP classroom, that is, ESP teaching and learning and ESP teaching and learning with technology?

This first question requires a description of the students' construction of the ESP classroom, as it emerges during the individual interviews. This is expected to lead to a partial view of this construction since a more complex view is expected from students' participation in the design of the Portal mentioned above. This leads to the second research questions:

2. To what extent does students' involvement in the process of designing the computer technology for ESP bring to the light different elements of this 'construction'?

This second question, thus, is expected to lead to a broader understanding of the value and complexity of students' construction of the ESP classroom as it emerges in the design process.

Following this introductory chapter, this thesis is structured as follows:

Chapter 2 addresses the question of ESP practice. Since ESP is best understood when its context is taken into account, there is a discussion of the status of English as a foreign language in Brazil and its relationship with ESP teaching and learning within this context. All the definitions of ESP stress that learners' needs is a key factor. However, it is argued here that the ESP area has a lot to gain from involving students in *reflecting about* and *confronting* these needs.

Following this argument, Chapter 3 focuses on how the students' views of – or beliefs about – the second language classroom have been examined in different studies, and the different agendas and methodologies that have been employed. All these studies have, to varying degrees, helped to sensitise teachers and researchers to understanding the importance of students' views. It is argued here that a contextual approach to the study of beliefs is required and that the analytical framework outlined by Benson and Lor (1999) allows the students' construction of the ESP classroom to be investigated in depth.

Chapter 4 is concerned with the use of the Participatory Design approach as a technique to collect more concrete data about students' beliefs. It is argued that

involving students in the design of educational technology may be a way of gaining insights which have not always been available via techniques which rely essentially on students reporting their beliefs or on observing their behaviour in existing contexts.

Chapter V – Methodology – outlines how the Participatory Design approach was carried out: the context of the research, the nature of the participants, the methods for data gathering. Also, this chapter outlines the approach to data analysis and addresses the ethical and political issues arising from the research study. These issues encompass the research project as a whole, in particular the involvement of the students in the design process and the dual role of the researcher who is also an ESP teacher.

Chapter 6 is the first analytical chapter and seeks to address the first research question by analysing the data gathered from the interviews. Chapter 7 is the second analytical chapter and seeks to re-address the first research question and address the second research question by analysing the data gathered during the workshops. Chapter 8 examines the issues that emerged from the analytical chapters.

Finally, Chapter 9 summarises the conclusions of this thesis, and its implications for ESP teaching and learning.

CHAPTER II

ENGLISH FOR SPECIFIC PURPOSES

2.1 Introduction

Before exploring students' construction of the English for Specific Purposes (ESP) classroom, this chapter addresses questions related to theories and practices within the ESP domain.

The history of ESP has been told from a variety of perspectives. An account of its origin after the 2nd World War as a means of improving communication, its development and main features can be found in Hutchinson and Waters (1999), Dudley-Evans and St. Johns (1999). A more critical review can be found in Benesch (2001) who presents ESP development "as a consensual and inevitable chronology of pedagogical events" (p.34), but also as "a well-crafted and organized effort on the part of governments, businesses, and foundations working together to (...) ensuring that markets and labour would be available to promote their economic interests" (p.34-5). More recently, new trends in both ESP research and classroom practice are discussed in Belcher and Lukkarila (2011) with accounts, for instance, on ESP being supported by corpus studies, and in Paltridge and Starfield (2013) who present ESP being applied in areas so diverse as aviation and medicine.

The definition of ESP that will be used throughout this research comes from Paltridge and Starfield (2013) who say that ESP is "the teaching and learning of English as a second or foreign language where the goal of the learners is to use English in a particular domain" (p.2). As the main aim of ESP courses is to meet the specific needs of learners, the authors add that ESP courses, "focus on the language, skills, and genres appropriate to the specific activities the learners need to carry out in English" (p.2).

As learners' needs are diverse, ESP has expanded and different areas have emerged such as English for Academic Purposes (EAP), English for Occupational Purposes (EOP), English for Vocational Purposes (EVP), English for Legal Purposes (ELP),

English for Business Purposes (EBP), English for Medical Purposes (EMP) and so on. As further discussed below (Section 2.3), the ESP practice under investigation here acknowledges that students have both immediate academic needs and future professional needs. As such, there is no clear division between ESP and EAP and, as such, both offer important contributions to this study. However, since ESP is best understood when its context is taken into account, there is a discussion of the status of English as a foreign language in Brazil and the role of ESP in Brazilian universities. Next, the particular features of ESP within the context of this research will be discussed with a focus on learners' needs in terms of language, skills and genre. Finally, the concept of *need* will be further discussed with the aim of supporting the argument that the ESP area has a lot to gain from involving students in *reflecting about* and *confronting* their own learning needs.

2.2 English as a Foreign Language Teaching in Brazil

Foreign language teaching and learning *per se* are complex tasks, and some additional complexities are added when these tasks are situated in an emerging country with a multi-ethnic and multi-cultural population. As Bohn (2003) points out, Brazil is a developing country, and much still needs to be done in terms of developing basic literacy skills and so, sometimes, investments in foreign language instruction are questioned. Considering the multi-ethnic and multi-cultural features of the country itself, the author says that it would be unfair to expect the same motivation for foreign language learning in such different regions as highly industrialized cities where the English language is likely to be a need and small villages in the Amazon forest.

This section is about one specific issue related to English language teaching in Brazil: the different moments in history and different status English language teaching has had in this context. This section does not aim to problematize or assess events related to English language teaching in Brazil but only to present different trends relating to the teaching of foreign languages for Brazilian students at regular schools in the country. However, I acknowledge that the trends presented here serves to my own agenda and, consequently, it cannot be understood as a mere description of events.

English as a Foreign Language in Brazil: a historical perspective

This section aims at describing the different moves made by the Brazilian government regarding foreign language instruction in Brazil and their impact on English as a foreign language teaching in this context.

Leffa (1999) provides a review of the history of foreign language teaching in Brazil since its introduction in the country by the Portuguese royal family in 1808 till the publication of *Parâmetros Curriculares Nacionais* (National Curricular Guidelines) in 1998. According to Leffa, three events mark the beginning of the formal foreign language instruction in Brazil. First, the arrival of the Portuguese royal family in 1808 and the strategic need of establishing commercial relationship with England and France; second, the creation of the first official secondary school - Colégio Pedro II in 1837; and, third, the educational reform in 1855 which gave to foreign languages (i.e. English, French, Italian, German) the same status as the classical ones in secondary schools. However, according to the author, it was also during the monarchy that the teaching of languages starts to present problems arising from political and methodological considerations. As to politics, curricular decisions were in the hands of people with power rather of those with the necessary understanding on the complexity involved in foreign language instruction and, as to methodology, there was widespread use of the Grammar-Translation Method which overemphasized the presentation of grammar points and translation from and into the target language (Richards and Rodgers, 2001).

From this point on, different political systems (i.e. “Old” Republic, Dictatorship and “New” Republic or Democracy) were established, each carried out actions related to language teaching which changed the status given to the teaching of foreign languages in the country. However, across the 20th Century, there has been a gradual movement towards a more communicative approach in which the four skills (i.e. reading, writing, listening and speaking) are integrated with backwards steps taken from time to time towards more reading based approaches.

According to Leffa (1999), the *Reform of Capanema* which was held during the “Era Vargas” gave more attention to the foreign language instruction proposing a movement from a more instrumental instruction to a more global one by suggesting,

for instance, the development of some interest on knowing other cultures. The Reform recommended the Direct Method which presented, among its main features, the exclusive use of the target language (Richards and Rodgers, 2001). Leffa (1999) points out that, although there is not a clear reason, the methodology that was used in the classroom in this period was actually a simplified version of the Reading Method (Richards and Rodgers, 2001) in which only superficial aspects of texts were addressed.

The LDB - *Lei de Diretrizes e Bases da Educação* (Law on Brazilian Education Guidelines and Bases) was published in 1961. The time available for foreign language instruction was reduced from thirty-five to twenty-two hours per week. With the revision of the Law in 1971, foreign language instruction became elective. In 1996 it gained a compulsory status in later years of the Elementary Education cycle (from 10 to 14 years old) and in the whole of Secondary Education (from 15 to 18 years old).

In 1980, the Communicative Approach to foreign language teaching and learning began to be discussed in Brazil. This approach has been interpreted and applied in different ways (Richards and Rodgers, 2001) but, in general, it aims at engaging learners in communication through information sharing, negotiation of meaning and interaction. In Brazil this approach was initially criticised because of a heavy focus on oral comprehension and production which was seen as not feasible considering the structure of the Brazilian classrooms as made clear in the *PCNs - Parâmetros Curriculares Nacionais* (National Curriculum Parameters) launched by the Federal Government in 1998. Although the document provided no specific methodology for the teaching of foreign languages, it suggested that reading should be emphasized in the elementary level since

“the conditions of the classrooms in most Brazilian schools (reduced instructional time, crowded classrooms, teachers with low proficiency levels of language knowledge, supporting materials reduced to chalk and textbooks) may make impossible the teaching of the four communicative skills”. (Brasil, 1998, p.21)¹.

Taking a different direction, the *PCNs for Secondary Education*, launched in 2000, suggested the development of the four skills:

¹ My translation

“...students need to acquire good grammatical, sociolinguistic, discursive, and strategic competence. These are, in our understanding, the main purposes of Foreign Language instruction in Secondary Education”. (Brasil, 2000, p.29)²

In 2002, *PCNs+Ensino Médio* (National Curriculum Parameters + Secondary Schools) were launched claiming that the focus of foreign language learning should be “centred on the **communicative function**, (...) giving priority to the reading and comprehension of texts, oral or written –and as such, communication in different spheres of everyday life”. (Brasil, 2002, p. 94)³

The document suggested three points to be emphasised: (i) linguistic structure, (ii) vocabulary acquisition since “to construct meaning implies the mastery of structure and vocabulary” (p.105), and (iii) reading and comprehension of texts (e.g. scientific, poetic, journalistic). In some occasions the document argued in favour of oral text production as dialogues and plays. It also recommended, in the section “Strategies for Action”, that oral activities should be provided in order to allow students to, for instance, ask and give information, describe everyday events, make suggestions and give opinions.

PCNs em debate (National Curriculum Parameters in Debate) was launched in 2004 and the objectives of foreign language teaching were the use of the language for oral and written understanding and production and, at the same time, it suggested a middle ground in terms of which skills should be taught in the classroom, that is, foreign language instruction should consider all uses of language. However, attention should also be paid to the teaching conditions (e.g. number of students, number of hours of instruction per week, teacher’s proficiency and the material available) as well as the social practices in different regions of the country.

The document went on to say that “[I]t does not make sense to go on thinking that it is only possible for schools to offer a sound experience of construction of meaning only when the four linguistic skills are considered.” (Brasil, 2004, p.48)⁴

The *OCNEM - Orientações Curriculares para o Ensino Médio* (Curriculum Guidelines for Secondary Education) was launched in 2006 and, regarding foreign

² My translation

³ My translation

⁴ My translation

language instruction, it was clearly positioned within a theoretical perspective based on critical thinking and critical literacy (e.g. Luke and Freebody, 1997; Temple, 2005) which lead to a discursive approach. It stated, right in the beginning that

“ [I]n terms of skills to be developed in the teaching of Foreign Language in the Secondary Education, this document stresses the skills of reading, writing and oral communication in context.” (Brasil, 2006, p.87)⁵

In the section on the role played by foreign language instruction in the country, the *OCNEM* discuss the different learning results in regular schools and private language schools. This need was felt due to the belief, identified by researchers and widely shared among the different actors involved in foreign language instruction, that foreign languages are not learnable in regular schools in Brazil (e.g. Paiva, 2005; Perin 2005; Barcelos; 2006). For instance, Perin (2005) investigated secondary students' beliefs about English as a foreign language learning. The researcher found out that, although the secondary students investigated recognised the importance of knowing English, many of them could pay for and attend foreign language classes in private language schools and, thus, treated the teaching of English in the regular state school with contempt and indifference. According to the author, this leads to “teacher stress, students lack of discipline and indifference and, obviously, more frustration at the end of the process” (p.150)⁶. Moreover, some issues which affect different educational systems as well as the Brazilian one, have their own impact on foreign language instruction; for instance, the state schools cannot interfere in the process of employing teachers and, thus, do not feel responsible for the poor work carried out by some of the teachers. Also, the lack of incentives (e.g. low remuneration and the large numbers of students in a class) means that teachers only stay in a school for a short period. As a result, no continuous programme of instruction is carried out and students have the feeling that the same content is being repeatedly taught.

In Barcelos (2006) there is a report of a study of Brazilian university students with regard to their previous experiences and their beliefs about the different places where English is taught in Brazil (i.e. the regular state schools and the private language schools). The author found out that regular state schools were not seen as places

⁵ My translation

⁶ My translation

where language learning is feasible. The experience in regular state schools was seen as poor and demotivating because of several factors. For example, teaching and learning were seen as based on repetition and memorizing grammatical rules; there were no supporting materials such as a standard textbook; and the teachers were regarded as incompetent when compared with those from language schools. On the other hand, the private language school was seen as a place where language learning was possible: learning materials were characterized as ‘complete’, ‘attractive’ and ‘great’; the teachers were regarded as models; and, studying in a private language school was viewed as a sign of social status. From this investigation, the author argues that:

“[W]e live with a dichotomised system that can contribute to more social exclusion and can be seen as a violation of the rights which every citizen has - the access to culture and education through the learning of a foreign language.” (p.168)⁷

From this discussion, the *OCNEM* tried to make clear that, different from private regular schools, foreign language instruction in state schools should contribute to a wider educational perspective in which a different form of seeing the world is constructed. However, this movement has not been enough to change the widely-shared belief that English is not learnable in Brazilian state schools.

In 2011 the Federal Government took an important action by freely distributing textbooks for English and Spanish instruction in state schools. One of the criteria for the selection of these textbooks was that they should offer contextualized language instruction and varied and authentic discursive practices so that students would be able to:

“learn how to read and write coherent texts in Spanish and English, to speak correctly according to the different communicative situations, and to understand these languages when used by different speakers, in different contexts and in real life situations.” (Brasil, 2011, p. 12)⁸

This and other programmes have been implemented in recent years that should help to strengthen language teaching, but there would appear to be no overarching medium or long term strategy that will ensure the further development of these approaches. The great majority of English language teaching in Brazil is today (as in

⁷ My translation.

⁸ My translation

the past) characterised by: limited instructional time, crowded classrooms, and teachers with low proficiency levels in terms of language knowledge.

Today, the document which guide the teaching of English as a foreign language in regular state schools in the State of Paraná is de *DCEs* (Educational Curricular Guidelines) last published in 2008. The document is clearly based on a view of language as discourse from a Bakhtinian perspective, that is, “it is in the discursive engagement with others that we shape what we say and what we are” and that “the foreign language is a space for widening the contact with different forms of knowing, with different interpretative procedures for constructing reality” (Paraná, 2008, p.53). As such, students are expected, among other aims, to use the language in oral and written communicative situations, experience forms of participation which allow them to establish links between individual and collective actions, and understand that meaning is socially and historically constructed and so might change social practice. From the perspective of discourse as social practice, socio-pragmatics and linguistic, and discursive issues are expected to be approached as well as language use in its oral and written forms. In practical terms, the *DCEs* clearly suggest a genre approach to the methodology (see further discussion on Section 2.4.3) of foreign language teaching and learning in order to widen the understanding of different uses of language in different contexts. The document presents a list of possible genres to be studied in the classroom (e.g. TV ads) and their spheres of use (e.g. publicity) and basic content to be taught (e.g. discourse markers) regarding both the oral and written forms of language.

The different documents listed above indicate the different moves made regarding the teaching of language skills (i.e. reading, writing, listening and speaking) in Brazilian schools. This is, probably, a reflection of two educational trends: a global approach in which the four skills are integrated as a form of providing a wider educational experience, or meeting the demands posed by the professional contexts which require foreign language speakers (Paiva, 2000), and a monoskill approach in which reading is emphasised as a form of teaching foreign language successfully considering the features of foreign language classrooms in the Brazilian context. One of the main reasons why reading continues to be stressed, particularly in secondary education, is that it has an important role in the Vestibular which is the exam

students take for university entrance. Each university is responsible for preparing and administering its own exam entrance and, in an attempt to change access to university, the Brazilian government implemented, in 1998, a unified national exam, the *ENEM* (Brasil 1998) which aims at assessing students' performance at the end of basic education and which has been more and more accepted by private and state universities as an entrance exam. In 2010 foreign languages (i.e. English and Spanish) were integrated to *ENEM* and, as in the Vestibular, only reading has been assessed.

Although some movements towards a more communicative approach to language teaching and learning, for Ur (2011), "grammatical explanations and exercises continue to be prominent both in coursebooks and in the classroom practice of teachers in school-based foreign-language courses (p. 507). Or, as Jin and Cortazzi (2011) put it, although traditional approaches have been widely criticized for not developing learners' communicative skills, in many second or foreign language classrooms elements as explicit explanations of the L2 grammar and the classroom uses of learners' first language (L1), translation between L1 and L2, or bilingual vocabulary lists and memorization still persist.

Finally, much of the reading instruction carried out in foreign language classrooms in Brazil is influenced by the research and practice from the ESP area. For Paiva (2000), this approach is considered by primary and secondary teacher as "convenient, less demanding, and an easy means of keeping control of students". Why ESP approach to reading is characterized as such is discussed next.

2.3 ESP in Brazil

As mentioned above, ESP is best understood when its context is taken into account. In the previous section I have discussed the status of foreign language instruction in the country. Here, the aim is to identify a group of characteristics which is not necessarily specific to ESP in Brazil but will be of value in understanding the context of the present research.

In a retrospective view of the Brazilian ESP Project, carried out during the 1980's, Celani (1998, 2005) points out that its aim was "to improve the use of English by

Brazilian researchers, science teachers and technicians especially with regard to reading specialist and technical publications” (1998, p.234). To meet this aim, the project’s interests were the design of classroom materials, the creation of a resource centre, and undertaking research and teacher education. According to the author, twenty universities were involved at the beginning of the project and twenty-four secondary technical secondary schools joined later what can be considering an important achievement. The universities and the secondary schools were located in eighteen of the twenty-six states of Brazil and involved the participation of teachers with a range of backgrounds in terms of education and teaching experience.

The theoretical framework of the project was derived mainly from the theories of Paulo Freire. In his most well-known book, ‘Pedagogy of the Oppressed’ (Freire, 1970), Freire formulated the concepts of *banking education* and *conscientização*. *Banking education* refers to depositing, transferring, and transmitting pre-determined values and knowledge to learners within school. *Conscientização* refers to the process of ongoing and critical action and reflection on the world with a view to changing it, or changing *banking education*, and hence changing the world as a result.

According to Celani (1998), one of the assumptions of the Brazilian ESP Project was that it would engage teachers in critical reflection on their practice. This would make them agents of their own development “by means of looking with searching reflective eyes at their particular situation and deciding what was best” (p. 239). As Scott (1991) argues below, *Conscientização* also became part of the role expected from ESP students:

“ensuring students understand, with their hearts as well as their heads, why they are learning and practicing the skill being taught, how they individually do so, and to what extent proposed strategies are effective, and what the reading process involves.” (p.279)

Finally, the emphasis laid on the reading skill raises a number of pedagogical questions such as the following posed by Hutchinson and Waters (1987, p.75-76):

- Can we only learn to read effectively by reading or can other skills help learners to become better readers?
- What are the implications for methodology of having a mono-skill focus? Will it lead to a lack of variety in lessons or a limited range of exercise

types, which will soon induce boredom in the learners? Could other skills be used to increase variety?

- How will students react to doing tasks involving other skills?
- Do the resources in the classroom allow the user to employ other skills?
- How will the learners react to discussing things in the mother tongue?
- How will learners' attitudes vary through the course?
- How do the learners feel about reading as an activity?

How the teaching of reading has developed is discussed in more depth in the next section.

2.4 Perspectives on teaching reading in the ESP classroom

As discussed above, much of the Brazilian approach to ESP was born from the Brazilian ESP Project and its perceived need of teaching secondary technical and university students how to read specialist and technical publications. This section will present an overview of different perspectives on this task in the ESP classrooms in Brazil.

Almost thirty years ago, when investigating approaches taken to ESP worldwide, Johns and Davies (1983) identified that most of the ESP reading practice was based on the view of Text as a Linguistic Object or TALO. In general terms, short texts, of “general interest”, were reduced to an object of study in which syntactic structures and vocabulary were analysed. The analysis of the content of the text was simply abandoned or postponed until the language was learned. Much of this approach was due to the fact that ESP teachers frequently found themselves teaching language from texts whose subject matter they did not understand. The authors proposed, then, as an alternative, a view of Texts as Vehicle for Information or TAVI. In their proposal, the authors suggested the reading task should bring to the light the text *value*, that is, what the students *needed* to know.

In a recent review Hirvela (2013) has described the historical roots and more recent developments in reading research and practice within the ESP area. The review argues that ESP has developed from an approach to analysis of language at the level of the sentence, to analysis of discourse and rhetorical components of texts. This

movement seems to be the realization of the proposal made by Johns and Davies (1983) above.

These developments and their impact on the Brazilian ESP approach to the teaching of reading are presented next.

2.4.1 Reading Strategies

As mentioned above (2.3), the main aim of the Brazilian ESP project was to improve students reading skill. Actually, the focus on reading, the training of reading strategies, and the strong reliance on learners' first language as a means of instruction were the main features of what Celani (2005) calls "a specifically Brazilian approach to ESP" (p.17).

The teaching of reading strategies as grounded on Cognitive Theory, focuses on the thinking processes involved in language use. This led to the development of the skill-based approach which, according to Hutchinson and Waters (1987), is based on two fundamental principles: (i) the theoretical basis of ESP in which "underlying any language behaviour are certain skills and strategies, which the learner uses in order to produce or comprehend discourse" (p.69); (ii) the pragmatic basis of ESP that seeks to adjust to learning contexts which are subject to practical constraints such as the time available and students' experience. Within the skill-based approach, "[t]he emphasis in the ESP course, then, is not on achieving a particular set of goals, but on enabling the learners to achieve what they can within the given constraints" (p.70).

Reading strategies are defined by Dota (1994) as conscious procedures adopted by the learners" and the author argues that "it is necessary to draw the learners' attention to follow stages which can make it easier for them to learn while giving them the means to control these stages " (p.42)⁹. Examples of reading strategies taught to ESP learners are:

- Rely on context to deduce the meaning of unknown words;
- Try to predict the theme of the text they are going to read;
- Scan the text to find specific information;

⁹ My translation.

- Focus on specific parts of the text such as its introduction or conclusion;
- Notice that there is no need to know the meaning of every word in the text in order to understand it;
- Pay attention to morphological features (prefixes and suffixes) in order to obtain information;
- Rely on previous knowledge of the topic and of the world;
- Pay attention to cognate words;
- Pay attention to repetitive words and key words;
- Use typographical cues such as symbols and illustrations;
- Pay attention to how words might be associated with rhetorical functions;
- Recognize connectives and their role in joining sentences.

Much of this interest on teaching reading strategies was, according to Holmes (2005), “a conscious reaction against the teaching of grammar as a central feature of ESP classes” (p.238) in the Brazilian ESP context. However, Dudley-Evans and St John (1998) argue that “it is incorrect to consider grammar teaching as outside the remit of ESP” (p.74). Investigating the history of the Brazilian ESP project, it is possible to find Holmes’s (2005) alert that there was a real need “for the teaching of strategies to be joined to the teaching of language in a systematic way” (p.240). It is also possible to find Deyes’s (2005) suggestion for the development of what he termed a “minimum discourse grammar” which would help students to “understand relationships between the various concepts and propositions occurring in the text” (p.51). Reviewing the term a ‘minimum discourse grammar’ in 2005, the author argues that it is *minimum* because the ESP modules are usually short and teachers need to be highly selective; focused on *discourse* because reading is an interactive process which involves the author intentions, learners’ previous knowledge and reading purpose; and that *grammar* is a pedagogical tool, that is, a list of language items selected by teachers according their view of learners’ needs. The author emphasizes that this grammar can be continually developed by the ESP teacher as new items of language are identified and have their role in assisting learners “find their way through the discourse they confront in their specialisms” (p.72). Consequently, decisions on what and how grammar should be taught depends on the sensitivity of ESP teachers to the surrounding context.

The teaching of reading strategies was also found to be productive in terms of vocabulary teaching. Actually, Tumolo (2007) argues that ESP/EAP reading courses in Brazil still tend to be constrained to the teaching of strategies such as for instance,

to pay attention to repetitive words and key words. The author argues that “there seem to be many issues, theoretical and practical, still unresolved for language teachers concerning vocabulary instruction” (p. 497).

Coxhead (2013) lists different labels that are used to defined different groups of vocabulary such as *special purpose*, *specialized*, *technical*, *sub-technical*, and *semi-technical*. Dudley-Evans and St John (1998), pragmatically, define two kinds of vocabulary that should be approached in the ESP classroom: the technical and the semi-technical and argue that it is the semi-technical vocabulary that needs to be prioritized in the ESP classroom, that is, “general vocabulary that has a higher frequency in a specific field” (e.g. verbs such as *confirm*, *agree* in Tourism). The authors also consider in this category general English vocabulary that has a specific meaning in certain areas (e.g. *bus* in Computer Science). For Coxhead (2013), these words pose a challenge for ESP teacher and learners since they are “already established in their lexicon in a particular way” (p.127). Another challenge is that technical vocabulary evolves and renews itself what is the very case of English for Computer Science which has to deal with an area characterised by fast developments.

Whilst accepting that there are conflicting opinions about what vocabulary should be taught in the ESP classroom and how that should be carried out, Coxhead (2013) argues that vocabulary instruction is important since:

- The focus of ESP on learners’ needs means that most of the class time is devoted to the reading of material that contains key ideas and the language of their field.
- Understanding and using the technical vocabulary shows learners’ membership to the specific community they are entering.
- It might be a difficult task to develop learners’ understanding and use of such vocabulary mainly when the ESP module is offered for novices or in an area different from the one chosen by learners.

Finally, besides providing teachers with a clear set of “content” to be taught, the explicit teaching of strategies is not enough mainly when a reductionist approach is applied, that is, when reading instruction relies only on the teaching of these strategies and wider perspectives on text analysis are not considered. For instance, Scott (2005), immersed in the Brazilian ESP Project, identified that “[T]here had

always been a clear focus throughout the Project on reading and reading strategies, and quite often a general recommendation had been made to students and Project colleagues to ‘read between the lines’ ...” (p.123).

Next, I discuss different approaches which have been used in an attempt not only to describe what language students’ need to learn, but also how to learn this language more effectively.

2.4.2 Register Analysis

The concept of *register* has had a significant impact on ESP history since ESP learners needs were understood in terms of lexical and grammatical features needed in order to function successfully within specific domains. Register is best known from the studies of Halliday et al (1964) and Swales (1971). For Halliday et al (1964) “language varies as its function varies; it differs in different situations. The name given to a variety of language distinguished according to its use is register” (p.87). Situation, for Halliday, can be represented as a complex of three dimensions: field, tenor, and mode. In general terms, field is related to the social action in which the text is embedded and it includes the topic (e.g. a technical one). Tenor is related to the relationship among the participants (e.g. teacher-students, reader-writer). Mode is related to the channel selected (e.g. written or spoken, spontaneous or planned).

Attempts have been made to apply Halliday’s ideas to ESP teaching. Although his framework encompasses a number of socio-cultural features of communication, register analysis in the 1960s and 1970s within the ESP arena considered only lexical and grammatical features of particular registers (Tardy, 2011) as, for instance, recurrent use of vocabulary and grammatical features in academic articles, and the teaching of these in the ESP classroom. Register analysis was later argued to be inefficient mainly because it involved a concentration on form rather than on language use and communication (Dudley-Evans and St John, 1998). For Tardy (2011), “the basic principle of studying features of the language most relevant to learners has remained important to ESP to this day” (p.146) and has grounded the design of different ESP courses in conjunctions with other levels of analysis (e.g. Vian Jr., 2003; Joyce and Hood, 2009).

A useful approach to register analysis within the ESP area is given by Biber and Conrad (2009). The authors define register as “a language variety associated with both a particular situation of use and with pervasive linguistic features that serve important functions within that situation of use” (p.31). In the case of Computer Science students, for instance, specialized registers such as research books and research articles are among the most important ones to master in order to gain access to information and to function successfully both in the academic and professional contexts. According to the authors, register analysis comprehends three major components: linguistic features, the situational context, and the functional relationship between the two first components. When, applying such an approach to the analysis of research books and research articles, the authors indicate some differences between the two registers. From the situation perspective, one example is that research books are written for novices in the field whereas research articles are written for trained professionals in the field. From the linguistic features perspective, one difference is the use of the passive tense: research articles tend to use the passive more often than research books. From the function perspective, the communicative purpose of research books is to explain information for novices, whereas the communicative purpose of research articles is to present new finding for experienced professionals. Therefore, according to the authors, considering the situational characteristics as an example, “it is immediately easy to see why research articles are often difficult for students to read: they are not the intended audience, and they are probably unskilled in recognizing established knowledge vs. new knowledge, and in evaluating scientific merit” (p.126).

2.4.3 Genre Analysis

Genre analysis is another approach to analyzing texts used in ESP. Genre was initially defined by Swales (1990) as a set of communicative events with a particular communicative purpose shared by the members of a discourse community. From analysing a number of texts within a given register (e.g. introduction to academic research articles), Swales concluded that these texts had structural patterns in common and each of these structural patterns had different rhetorical functions. The

author referred to these functions as *moves* and their corresponding *steps* exemplified below in Table 2.1:

Move 1: Establishing a territory
Step 1: Claiming centrality and/or
Step 2: Making topic generalization and/or
Step 3: Reviewing items of previous research
Move 2: Establishing a niche
Step 1A: Counter-claiming or
Step 1B: Indicating a gap or
Step 1C: Question-raising or
Step 1D: Continuing a tradition
Move 3: Occupying the niche
Step 1A: Outlining a purpose or
Step 1B: Announcing present research
Step 2: Announcing principal findings
Step 3: Indicating Research Article structure

Table 2.1: Swales' moves and steps (Swales, 1990)

Swales identified different instances of each of the steps and moves. The first step (i.e. claiming centrality) of the first move (i.e. establishing a territory) can be exemplified by the following topic sentences:

- Recently, there has been wide interest in ...
- In recent years, researchers have become increasingly interested in...

Genres can be materialized in a range of different ways and, as such, the application of Genre Analysis in the classroom should not be understood as a “prescriptive training’ model” or as based on *moves* and *steps* (Flowerdew, 2011).

Bhatia (1993), on the other hand, brought to discussion the context (as in stages 1, 2, 3, 5 and 7 below) in which specific genres were produced by proposing an analysis with the following stages:

1. Placing the given genre-text in a situational context.
2. Surveying the existing literature.
3. Refining the situational/contextual analysis.
4. Selecting a corpus.
5. Studying the institutional context.
6. Levels of linguistic analysis.
7. Consulting with specialist informants.

Table 2.2: Bhatia's stages (Bhatia, 1993)

Besides the different approaches to genre analysis within the “ESP School”, there is a lot to learn from genre analysis approaches used by the “Sydney School” and the “New Rhetoric School”.

The Sydney School approach to genre analysis was influenced in large part by Halliday. According to Martin (2009), the research within the past three decades has been mainly on improving writing skills of indigenous and migrant Australian students who were learning English as a second language. Genre is defined by Martin as a staged goal-oriented social process. It is staged “because it usually takes us more than one phase of meaning to work through a genre”; it is goal-oriented “because unfolding phases are designed to accomplish something and we feel a sense of frustration or incompleteness if we are stopped; it is social “because we undertake genres interactively with others” (p.13).

According to Bawarshi and Reiff (2010), the ESP and the Sydney School approaches to genre analysis have both similarities and differences. Both share the view that linguistic features are connected to social context and function, and both share the pedagogical interest to make visible this connection between social context and function and to teach it explicitly in the classroom. However, while the interests of the ESP School are on university learners, non-native speakers of English and those who are “linguistically disadvantaged”, the interests of the Sydney School are on “economically and culturally disadvantaged” children in Australia. For the authors, these different interests lead to different choice of genres to be analyzed, that is,

while the ESP School focuses on academic and professional genres (e.g. research articles and books), the Sydney School focuses on what might be called “pre-genres” such as explanations, recounts and descriptions. Finally, these different interests lead to differences in understanding *context*. While the ESP School approaches context as “discourse community” (e.g. Computer Science community), the Sydney School tends to have a broader view of context that includes culture, that is, different genres can emerge and change depending on the social activities within the context.

Turning now to look at the relationship between the ESP School and the New Rhetoric School, Bawarshi and Reiff (2010) say that they differ fundamentally in one aspect: the first sees genre as “forms of communicative actions” (p.57) and the second sees genre as “forms of social action” (p.58). More clearly:

“..while ESP genre scholars have tended to understand genres as communicative tools situated within social contexts, RGS¹⁰ scholars have tended to understand genres as sociological concepts mediating textual and social ways of knowing, being, and interacting in particular contexts” (p. 59).

Flowerdew (2011) says that this emphasis on social action causes genre analysis to move from a linguistic to a ethnographical perspective: “it must focus on the attitudes, beliefs, activities, values, and patterns of behavior of the discourse community engaging in the genre or genres that is/are the focus of study” (p.132). In addition, this emphasis on social action means that the interests of the New Rhetoric School are on how genres are constantly changing and how they can be manipulated by their participants. On the other hand, the author adds that this view of genre leads to the question of to what extent can genre instruction be approached in the classroom? To what extent can these social actions be recreated in the classroom? With respect to these questions, Hyland (2002, 2007) argues that knowledge of genres has an important potential both for ESP teachers and students. With his interest on EAP writing courses, the author contends that it has significant implications for teacher’s understanding of writing and their professional development by becoming “more attuned to the ways meanings are created and more sensitive to the specific communicative needs of their students” (2007, p.151). L2 students, on the other hand, would gain from being exposed to genre instruction since it would, among others, “make clear what is to be learnt”, provide “a coherent

¹⁰ Rhetorical Genre Studies

framework for focusing on both language and context”, “access to the patterns and possibilities of variation in valued texts” and “provide the resources for students to understand and challenge valued discourses” (2007, p. 150).

The recent interest in the pedagogical application of different genre analysis approaches to ESP reading classrooms in Brazil is exemplified by Ramos (2004), Beato-Canato (2011), Bambilra (2007), Estima (2011), Rezende et al (2013). Ramos (2004), for instance, moves from the studies on genre made by Martin (1984, 2000), Swales (1990) and Bhatia (2001) to present three phases (i.e. presentation, detailing and application) for the development of genre analysis in the ESP classroom aiming at:

- Making students aware of purposes and textual structure of different genres, as well as of their linguistic, contextual and socio-cultural features which are meaningful and representative.
- Making the necessary conditions for students to understand the text as a linguistic, social and meaningful construction and, also, to develop critical comprehension skills on the use of such genres.
- Providing the knowledge of textual forms and content as well as the processes by which genres are constructed.
- Making students to use the necessary skills to apply such features in their own production.

Finally, these approaches to language have become part of ESP history and, thus, have played an important role in its development. However, as argued by Hamp-Lyons (2011) “we cannot explain text, discourse or genre behaviour without including in our consideration the social contexts within which text is created, students learn, and people see the need for English”. (p.98). How needs analysis has been conducted in the ESP area is discussed next.

2.5 Needs Analysis

I have so far tried to contextualize the teaching of ESP in Brazil. I have briefly presented the different moves in official documents about how foreign language

instruction should be approached in different moments in Brazilian history (Section 2.2). Also, I have described some specificities of ESP within the context being investigated (Section 2.3) and discussed different approaches to the teaching of reading in the ESP classroom (Section 2.4). Although the monoskill approach based on the reading instruction cannot be seen as characterizing the range of Brazilian ESP classrooms today, it is the one which characterized the classroom investigated here since it was seen as the main need of the learners within this context. In this section I discuss the concept of *need* and how needs have been approached within the ESP domain. This discussion aims at supporting the main argument of this chapter, that is, the ESP area has a lot to gain from involving students in *reflecting about* and *confronting* these needs.

2.5.1 What needs? Whose needs?

In 1978 Munby published his *Communicative Syllabus Design* (Munby, 1978) in which he established a theoretical framework with a set of parameters from which information on the target situation needs could be gathered. Until then, language teaching had been mainly based on the teachers' intuition of the learners' needs (Braine, 2001). As I will show in the remainder of this section, the discussion on 'needs' has evolved with a broader understanding regarding the different kinds of needs, how to access these needs, who to question about these needs, and so on.

Firstly, Brindley (1984) points out that the disagreement on the meaning of 'needs' and what 'needs analysis' entails, has resulted in two approaches which are labelled 'product-oriented' and 'process-oriented'. The former is a 'narrow' interpretation of needs where learners' needs are seen in terms of the language they will have to use in a particular communicative situation. Within this approach, the aim is to find out as much as possible about the learners' current and future language use. The second approach is a 'broad' interpretation of needs in which the learners are seen as individuals in the learning situation. What is looked for is a multiplicity of affective and cognitive variables which may affect learning and, among them, the author cites the learners' attitudes, motivations, awareness, personality and wants.

Hutchinson and Waters (1987) suggest that learners have two kinds of needs: target needs and learning needs. Target needs refer to “what the learners have to do in the target situation” (p.54), and they should be looked at in terms of:

- Learners’ necessities: what the learner has to know to act effectively in the target situation;
- Learners’ lacks: the gap between the learners’ proficiency (what they already know) and the target situation (what they still need to know);
- Learners’ wants: the learners’ views on what they need to learn.

However, the learning situation, its potential and constraints, is also emphasized. The authors claim that it is important to know how people learn, and argue that knowledge of the target situation alone is not enough to determine what is needed or useful in terms of learning.

The authors suggest a number of questions to investigate the target and the learning needs:

Target Needs ↓	Learning Needs ↓
(1) Why is the language needed?	(1) Why are the learners taking the course?
(2) How will the language be used?	(2) How do the learners learn?
(3) What will the content areas be?	(3) What resources are available?
(4) Who will the learners use the language with?	(4) Who are the learners?
(5) Where will the language be used?	(5) Where will the ESP course take place?
(6) When will the language be used?	(6) When will the ESP course take place?

Table 2.3: Needs analysis framework (adapted from Hutchinson and Waters, 1987)

Hutchinson and Waters (1987) point out that the data required for the needs analysis is complex and, thus, different sources should be used such as questionnaires, interviews, informal consultations with sponsors, learners and others. In addition, the

time and resources available need to be considered. Finally, the authors suggest that needs analysis should be carried out as a continuous process and the data continually checked and re-assessed and that the awareness of these needs, by learners, sponsors and teachers, “will have an influence on what will be acceptable as reasonable content in the language course and (...)what potential can be exploited” (p.53).

After reviewing a range of definitions of needs, Dudley-Evans and St John (1998) devise their own typology. *Target situation* refers to objectives, as well as perceived and product-oriented needs. *Learning situation* refers to subjective, felt and process-oriented needs. *Present situation* refers to “strengths and weaknesses in language, skills, learning experiences” (p.124). Finally, Dudley-Evans and St John (1998) suggest that a *means analysis* should be carried out to help create the environment in which the course will be run (e.g. the management structure and culture). It is argued that means analysis shows that what works in one context may not work in another: “the needs and how they are prioritised, ordered and then met, will be different” (p. 124).

The methods suggested by Dudley-Evans and St John (1998) to conduct needs analysis are questionnaires, analysis of authentic spoken and written texts, discussions, structured interviews, observation and assessment.

A different view of needs is suggested by Benesch (2001, 2009) from her experience in needs analysis in the area of EAP. Benesch adopts a strongly political position towards needs analysis and argues for *rights analysis*. The author says that “[P]ower issues have been ignored in the name of pragmatism, that is, fulfilling target expectations without questioning the inequities they might perpetuate or engender” (2001, p.3). The author borrowed Freirian concepts such as ‘hope’, ‘dialogue’, and ‘situatedness’ in order to create opportunities for dialogue based on local concerns. For instance, the author thinks that ‘hope’ to obtain more equitable social arrangements is what can challenge unjust or dehumanizing situations, and lead one to question situations seen as ‘natural’ or ‘inevitable’. Benesch examined a range of ESP literature and identified a lack of students’ voice what might perpetuate externally imposed needs and this criticism could also be applied to ESP in general. However, the central role played by learners in needs analysis is more and more

acknowledged and different approaches to needs analysis have been used to put learners in a protagonist position.

In discussing the methodological factors which must be taken into account in needs analysis, Robinson (1991) raises some important political and ideological issues.

The first is to ask who the analyst is and who provides the data. The author writes “the needs that are established for a particular group of students will be an outcome of a needs analysis project and will be influenced by the ideological preconceptions of the analysts” (p.7). The sources of data for needs analysis may be the students, teachers or sponsors; all of them have different views of what is required and what kind of conflict is likely to emerge.

The second issue concerns the principles used for data selection. This is also dependent on the analysts. Whether or not the analysts adopt an approach to teaching based on linguistic forms, they will focus on needs that are expressed in terms of language items.

The third issue is the needs analysis in practice. The author recommends diverse techniques for conducting a needs analysis: questionnaires, interviews, observation sessions, case studies, tests, and participatory needs analysis. Even though all of these techniques *can* be employed to involve students in their learning process, they all can have other purposes as well, whereas participatory needs analysis is solely centred on this involvement. In this approach, students are invited to discuss their needs and make suggestions on what should happen in the course. They may also be involved in researching their target situation so that they are better prepared for it.

2.5.2 Learners as a source for need analysis

The discussion above gives a brief account on different kinds of, sources of, and techniques for conducting needs analysis. Regarding the sources for needs analysis, the involvement of learners in such a task is seen by Long (2005) as a complex and sensitive issue. The author reminds us that, although learners might be keen to participate in needs analysis and can provide useful information on their learning preferences, they may not be able to provide information about the language

necessary to function successfully in their target discourse community, and thus, learners cannot be seen as the best source, or, at any rate, the only legitimate source for needs analysis. Johns and Davies (1983) also argue that students are not aware of what they need to know and that it is the teachers' task to make this information explicit and concrete.

Researchers have taken a variety of approaches to the role of learners in needs analysis. Hutchinson and Waters (1987), for instance, draw attention to the need for negotiation between teachers and students; however, they do not discuss the benefits of engaging learners in needs analysis. When discussing the different approaches to the teaching of reading, Dudley-Evans and St John (1998) point out that the purpose of needs analysis is:

“to know learners as people, as language users and as language learners; to know how language learning and skills learning can be maximized for a given learner group; and finally to know the target situations and learning environment such that we can interpret the data appropriately” (p. 126).

The authors are aware that some students may not expect to take part in any kind of negotiation, whereas others may enjoy the opportunity and gain “some control over what they are taught” (p.154).

For Belcher (2006), needs analysis needs to be based on the “recognition that learners, as reflective community members, should be empowered to participate in needs assessment alongside ESP professionals”. One argument supporting learners' voice in content selection is the fact that ESP teachers are not always good judges of what will interest and motivate their own students. For Belcher (2006), “it is essential for ESP teachers to learn how to learn from and with their students, engaging with them in genuinely participatory explorations of discourse domains”. Belcher and Lukkarila (2011) discuss the important role played by students' cultural identity in needs analysis and, consequently, in course design and argue that

“...learning more about how learners see themselves and who they want to become, can bring into sharp focus learner investment in language learning for multiple purposes as well as learners' current and wished-for language use in various modalities both inside and outside school/professional environments” (p.73).

The authors add that investigations on how learners see themselves might help language educators to “realize the multiple, unintended limitations that may be imposed on learners through too narrowly conceived needs-based teaching practices” (p.90). Along the same lines, Paltridge and Starfield (2011) point to the need of investigating learners needs in both their immediate and future communities.

In order to get a picture of what involving learners in needs analysis looks like in practice, so as to inform my own use of such approach in this study, I will describe three studies those of Liu et al (2011), Home and Chalauisaeng (2006), and Tajino et al (2005).

Liu et al (2011) explored students perceived learning needs. The researchers used questionnaires to investigate 972 students enrolled in General English and ESP/EAP courses in different university programs in Taiwan. One of their aims was to identify their needs, wants and lacks or to put this in another way, what was necessary, what was desirable and what was insufficient. The findings from the ESP/EAP group were that speaking was seen as their weakest skill; however, speaking was not seen as a skill to master. Reading was considered the most necessary and desirable skill to learn and writing the lacking one. What the authors found out was that what students see as need is not necessarily what they see as lack.

The authors argue that needs should to be seen as a multiple and sometimes conflicting construct and that the mismatch identified in the analysis may be attributed to “their self-knowledge, awareness of the target situation, life goals, and instructional expectations”. Finally, the authors conclude that:

- because of the inconsistencies and mismatch found, needs need to be understood as a complex, multiple and conflicting construct;
- there are different factors influencing learners’ perceptions of needs, wants and lacks;
- to learn about students’ personal approaches and concepts is fundamental in order to create a more effective, motivating and engaging learning experience;
- teachers should help students to become more aware of the complexities of their needs;

- active and self-responsible learners might produce long-term learning benefits.

Home and Chalauisaeng (2006) used the Participatory Appraisal approach to needs analysis. This approach is based on the assumptions made by the Participatory Rural Appraisal approach used to improve rural communities' needs related, for instance, to transport infrastructure and health. The basic Participatory Rural Appraisal principle is that any intervention is not productive and sustainable if it is designed to meet the needs an expert considers as beneficial, but rather it needs to emerge from the community's understanding of its own needs. The authors' interest was in a group of Pharmacology students enrolled in a 20-hour EAP module and the hypothesis investigated was that the Participatory Appraisal approach:

“could enhance the development of a learner-centred classroom, create a more positive attitude to language learning, improve motivation, and help learners achieve the greater self-direction that must support the future acquisition of academic reading skills” (p.409).

Some Participatory Appraisal techniques were applied in the classroom and data was collected through participant observation, semi-structured interviews, and questionnaires. One of the Participatory Appraisal techniques used was a “brainstorming through semi-structured discussion” and its aim was to identify solutions on how to accommodate learner-training objectives in content based syllabus. The authors note that some students were confused when asked for solutions to *their own* learning problems.

A technique known as the “cause and effect” technique was also used. The teacher asked students to think more carefully about their own learning and the factors hindering it. The class evaluation of learning problems and solutions is presented below:

Language skills	Problems	Causes	Effects	Suggested solutions
Reading	Limited vocabulary, lack of ways to get adequate understanding, don't like reading, particularly in English	Inadequate practice, laziness, dislike of reading, no background knowledge, language too difficult, particularly complicated sentences, technical terms and idioms	Lack of confidence, no motivation for reading, negative attitudes to reading English, limited reading ability, boredom	More training on ways of reading, more practice, more interesting learning activities, more relevant and practical reading activities

Table 2.4: Matrix showing the class evaluation of learning problems and solutions (Holme and Chalauisaeng, 2006, p.411)

According to the authors, the “cause and effect” technique encouraged students to prescribe their own solutions, rejecting an imposed syllabus in favour of one that emerged from their perceived needs. Other techniques were used such as “transect walk” in which students were asked to leave the classroom and interview senior students or graduates working in the area. Two main points are raised from this transect walk: students noticed that they needed to become part of a community of practice and they noticed that passing the exam was not their only need for learning since this community of practice posed a real need for improving reading. Finally, the study made clear that learners changed their beliefs about their responsibility regarding their own learning and a greater interest and motivation for learning and pursuing course objectives were identified.

The authors reflect that the Participatory Appraisal approach to needs analysis did require class time that could have been used to improve reading. However, conducting a traditional needs analysis which would have taken less time would only give students a view of the course outcome as a “vague abstraction” and students

would continue to focus on passing examinations rather than on engaging in meaningful learning.

The authors conclude that:

“True to its name, what PA offered was a participatory mechanism where students began to understand why they had to learn English and what they had to do to achieve that goal. They understood the goal of academic reading not as some distant theoretical objective, but as a practice into which they were inducted by the course itself.” (p. 416)

Tajino, James and Kijima (2005) investigated the use of Soft System Methodology to accommodate the different and equally valid perspectives from different actors involved in an EAP course in a Japanese university. These different actors were (i) twenty-nine students (enrolled in the EAP module but from different faculties at the university), the EAP teacher and subject teachers. Soft System Methodology is an action research approach developed in business studies to investigate “problem situations by means of which the processes of enquire and learning are organized”. The authors used Soft System Methodology stages as following:

Stage 1 and 2: finding out

- One important feature of to be addressed was the EAP module conflicting aims: to improve students' general education and to improve skill-oriented practical English.
- The different actors had different interpretations of the course aims. Students' perspectives were to improve their English listening skills in order to understand and enjoy TV/radio news and movies, to improve their score on tests such as TOEFL (Test of English as a Foreign Language), and enjoy the learning of English. Subject teachers mentioned that students could learn study skills, oral presentation techniques, and subject-specific English vocabulary. The EAP teacher's perspective was to help students improve their understanding of international issues, improve their communicative skills and learn about the culture of English-speaking countries.

Stage 3: formulating root definition

- A system was developed to combine the two module aims and to accommodate the different perspectives.

Stage 4: building conceptual model

- A conceptual model was built from the root definition and enabled the different actors to explore possible changes to improve the situation.

Stage 5: comparing models and 'reality'

- The conceptual model was debated within the real-world situation in which the actors were involved.

Stage 6: defining changes

- The debate was about the feasibility and desirability of the changes proposed.

Stage 7: Taking action

- Different textbooks, materials and activities were used to meet the different perspectives.

Table 2.5: Soft System Methodology stages (Tajino et al, 2005)

The authors identified three main problems in using the Soft System Methodology approach to EAP course design. Firstly, some time was spent in deciding which

perspectives from the various participants should be considered primary. Secondly, the accommodation of the different perspectives required that the EAP teacher consult a Soft System Methodology expert in search for advice. Thirdly, some decisions were based on the EAP teacher's intuition and might have not satisfied all the other actors involved. Finally, the authors describe the important contributions made by the Soft System Methodology approach. The EAP teacher knew more about how to accommodate students' and subject teachers' perspectives on the EAP module and how to accommodate the conflicting aims of the module. The authors stress the importance of students recognizing why and how the teacher taught a particular content, and the teacher recognized why students reacted the way they did. A "mutual understanding" was created and had a positive impact on classroom participation and on students' motivation.

2.6 Conclusions

The purpose of this chapter was twofold. Firstly, I thought it as important to provide a portrait of the context in which the present research was carried out, that is, a portrait of the status of English as a foreign language in Brazil and developments of ESP in the country. Secondly, it is important here to understand the nature of ESP learners' needs, the range of approaches to investigate these needs, and the complexities involved in understanding the nature of these needs from accounts made by learners themselves.

As discussed earlier, learners' needs can be approached within either a narrow or a broad view. The narrow view, pragmatic in nature, sees learners' needs in terms of the language they will have to use in a particular communicative situation. The broad view goes further and also acknowledges cognitive variables which may affect learning such as learners' attitude, motivations, awareness, personality and wants. Within this broad perspective, the literature reviewed here has shown some movements towards more participatory approaches to investigating learners' needs as exemplified by the works of Liu et al (2011), Home and Chalauisaeng (2006), and Tajino et al (2005). This approach also encompass the possibility of opening up a space where learners can reflect on and confront their needs rather than just accepting their needs as externally defined (e.g. by the job market), in a way which

is remote from the particular features of the classroom. This broader view is adopted here, and so the research questions of this thesis investigate how a participatory approach can produce more concrete data than the rather abstract data generated by traditional methods such as interviews. The motivation here is not only to identify students' construction of the ESP classroom, but also the value and complexity of this construction as it emerges within a specific context, in this case that context is the students' participation in the design of a Web Portal to support ESP learning and teaching.

The next chapter will explore this matter more fully and focus on how different research approaches and methods have dealt with the challenge of listening to learners' accounts on language and language teaching and learning.

CHAPTER III

LEARNERS' ACCOUNTS OF SECOND LANGUAGE LEARNING

3.1 Introduction

This chapter aims to investigate learners' beliefs about second language learning. It is expected that this investigation will help the present researcher to develop a framework about the nature of learners' beliefs about second language learning

The last decades have witnessed a growing interest within the area of Applied Linguistics about students' and teachers' viewpoints on what happens within the second language learning classroom. There has been a wide range of research investigating, for instance, students' and teachers' beliefs about language and language learning and teaching. Some of these studies can be found in the 27th and 39th volume of *System* published, respectively, in 1999 and 2011.

The review in Section 3.2 seeks to identify approaches to the investigation of learners' beliefs about second language learning and the methodologies that have been used to investigate what students have to say about aspects of second language learning. After this review, in Section 3.3, the analytical framework proposed by Benson and Lor (1999) will be described in detail with the aim of supporting the argument that the distinction made by Benson and Lor between conceptions and beliefs, and the qualitative and quantitative distinction applied to these levels, offers an appropriate approach to the discussing the that way students construct the ESP classroom.

3.2 Students' views of the classroom: different research methodologies

There are two reasons for looking at the research carried out on the learners' accounts of their beliefs about second language learning. First of all, it is

acknowledged here that learners' perspectives on what happens in the classroom are as important as the teachers' perspectives. Secondly, it is hoped that this present research will benefit from an examination of the use of different methodologies to gain access to the students' beliefs.

Kalaja and Barcelos (2013) say that the interest in learners' beliefs about language learning started in the 1970's. At that time there was an attempt to understand and learn from the good language learner and his or her characteristics and, at that time, beliefs were referred to as "learners' tacit knowledge" (Kalaja and Barcelos, 2013). Kalaja and Barcelos (2013) describe what they see as important developments in the research of beliefs within Applied Linguistics. The earliest studies are labelled by the authors as the *classics*, and studies which they describe as *normative* and *contextual* can be seen as developments in different directions from these classic studies.

3.2.1 *The classics*

Kalaja and Barcelos (2013) group under the label of 'the classics' the studies developed in the mid 1980's by Horwitz and Wenden.

Horwitz (1985) used techniques such as free-recall protocols of students and teachers and student focus groups in second or foreign language contexts, to devise a five-point Likert scale questionnaire (BALLI – Beliefs About Language Learning Inventory) to assess students' opinions about language learning. The inventory contains thirty-four questions, divided into five areas: difficulty of language learning; foreign language aptitudes; the nature of language learning; learning and communication strategies; and motivations and expectations. In one of Horwitz's studies (1988), foreign students, who were enrolled in university language classes, were asked to answer the questionnaire. In this study the researcher found that many elementary level university students had beliefs about language learning which the researcher considered as inconsistent with the learning context. For instance, a significant number of students expected to be able to speak the target language fluently in two years of non-intensive studies, which is not considered by Horwitz as realistic. Also, many of the students believed that the most important thing in language learning was to learn vocabulary and grammar. Horwitz suggests that

students with this view are likely to approach language learning using strategies such as memorizing lists of words and grammatical rules.

Wenden (1986) used semi-structured interviews to gather learners' verbal reports and so determine their knowledge of the language learning process. One of the author's interests was to determine which aspects of language learning learners are capable of talking about. On the basis of this investigation, five categories were identified:

- Designating: statements learners made about the language;
- Diagnosing: statements learners made about their proficiency;
- Evaluating: statements learners made about the outcome of using a strategy;
- Self-analysing: statements made about their reactions to a particular learning activity, statements made about the factors that facilitated or hindered their learning, and statements made about their social role and its relationship to learning; and
- Theorising: explicit statements made about how best to learn a language (using the language, learning about the language, personal factors), and implicit statements made about the learning context (content, method, focus on accuracy, the teacher, social environment, opportunity for use, clarity, task, linguistic environment).

Wenden (1986, 1999, 2001) defines beliefs about learning as part of metacognitive knowledge. According to Wenden (2001), metacognitive knowledge is essential for successful learning because students' understanding of themselves, the tasks they engage in and the strategies available for them directly impact on all their decisions about learning. For Wenden (1999, 2001), metacognitive knowledge has the following characteristics:

- It is stable. It is what learners know about learning and it is stored in the long-term memory. Although it is a relatively stable body of knowledge, it may change over time.
- It develops early. Wenden gives examples of research which documents the existence of metacognitive knowledge even in pre-schoolers.

- It may be acquired unconsciously (e.g. through observation or imitation) or consciously (e.g. through teachers' or parents' advice on how to learn).
- It can be described in words. Learners may reflect on and talk about it.
- It is a system of related ideas some of which are accepted without question while others are validated by their own experiences.

These characteristics can also be attributed to the learners' beliefs. However, beliefs differ from other kind of metacognitive knowledge in being based on the values that learners bring with them and, as such, they are held more tenaciously.

3.2.2 The normative approach

What Kalaja and Barcelos (2013) label as 'the normative approach' to the study of beliefs is derived from this earlier research carried out by Horwitz (1985) that was described in the previous section and uses BALLI as a main research instrument. For Barcelos (2004), the main aim of the normative approach is to describe and classify the types of beliefs that are pre-defined by teachers and researchers, and investigate how they might influence students' action.

Cotterall (1995), for instance, used BALLI in order to investigate English for Academic Purpose (EAP) learners' beliefs and their 'readiness' for autonomy. The justification for this interest was that it is necessary to determine the students' degree of readiness to make the necessary changes in their beliefs and behaviour, before attempting to foster their autonomy. The BALLI instrument was employed and a factor analysis of the data was carried out. Six factors were identified from the analysis: the role of the teacher; the role of feedback; learner independence; learner confidence in study skills; experience of language learning; and approach to studying. Regarding the role of the teacher, some of the beliefs that were found did not match what is required from an autonomous learner: many of the students agreed with statements such as "I like the teacher to offer help to me" or "I like the teacher to tell me what to do". The author argues that these views of the students could represent an obstacle to the teacher who wants to share responsibility for learning with the learners themselves.

Barcelos (2004) criticises the normative approach, noting that studies using this approach are based on abstract statements about beliefs which have been pre-defined by the teacher-researcher and enumerated in a questionnaire and arguing that this method fails to take into account the perspectives of the learners; as they are only asked to state whether or not they agree with those statements. Barcelos (2004) also argues this approach ignores one important element to be investigated: the relationship between beliefs and the context in which they operate. However, it should be stressed that some studies conducted within this approach did address the need to look at the context as a means of understanding the complexity of beliefs (e.g. Cotterall (1995) discussed above). BALLI, however, has been proved to be valuable when the research interest is on mapping the beliefs of a large group of learners (e.g. Mohebi and Khodadady, 2011) in which the population size makes it impossible to use a more sophisticated approach such as the ones suggested by Barcelos and Kalaja (2011) below.

3.2.3 *The contextual approach*

The contextual approach to the study of beliefs differs from the normative approach in that while the focus on understanding students' beliefs in the normative approach is *what* they believe about language learning, within the contextual approach the focus is on understanding "participants' perspectives and the way they organize their perceptions of events" (Barcelos and Kalaja, 2011).

Kalaja and Barcelos (2003) describe two aspects in which research within the contextual approach can differ:

- It may be based on a range of differing theoretical grounds. For instance, phenomenography (Benson and Lor, 1999), neo-Vygotskian socio-cultural theory (Alanen, 2003), Complexity Theory (Mercer, 2011) or discourse analysis (De Costa, 2011).
- It may apply a range of differing methods of data collection. For instance, informal discussions and stimulated recalls (Allen, 1996; Barcelos, 2000,) diaries (Hosenfeld, 2003), discourse analysis (Kalaja, 2003), interviews (Benson and Lor, 1999, Alanen, 2003), learning

journals (Navarro and Thornton, 2011), interviews, classroom observation, and artifacts (De Costa, 2011).

However, according to the authors, they

“share common assumptions about beliefs. They do not aim at generalizing about beliefs on SLA, but at getting a better understanding of beliefs in specific contexts. In general, they describe beliefs as embedded in students’ contexts” (p. 19).

The studies briefly described below adopt this approach.

Barcelos’ (2003) paper is an ethnographic research project about the impact of beliefs on teachers’ and students’ actions and interpretations in the classroom. Her interest was on how teachers’ beliefs about second language learning influence students’ beliefs and vice versa. The author argues that students make their own interpretations of what happens, or should happen, in the classroom and that these might not be the same as the teachers’ interpretations. In this study, Barcelos adopted the following Deweyan perspectives on experience, beliefs and identity:

- Teaching and learning are seen as a continuous process of reconstructing experience.
- Experience is the interaction, adaptation and adjustment of individuals to the environment.
- Experience is based on two principles: continuity (there is a link between past and future experiences) and interaction (the transaction between the individual and the environment in the sense that one shapes and is shaped by the other).
- Beliefs have a paradoxical nature since they express both doubt and assurance (Izard and Smith cited by Barcelos, 2003, p. 174).
- Beliefs are subjective and exist within one’s experience. They cannot be seen as separated from knowledge and action.
- Identity is co-constructed in interaction with other identities.
- Identity, learning, and beliefs are inseparable.
- We are born as members of groups (e.g. as a man or woman) and we become part of, or we are granted membership of, other groups (e.g. through our occupation or marital status).

Barcelos conducted her study in an international language institute at a university in the US. She observed three Brazilian students and three American teachers of ESL. She also conducted interviews, and carried out stimulated recall activities in which the students were asked to watch a video of one of their classes and make comments about it. In addition, she wrote diary notes and kept a researcher's journal.

The analysis showed that the students and the teachers hold different beliefs about the classroom atmosphere, the role of the teachers and learners, and the approach to grammar. Many factors influenced the student's beliefs and actions in the classroom. An example was that of a student who was placed in a level lower than she expected. Her disappointment about this influenced her perception of the class – she saw it as easy, and this influenced her teacher's perceptions of her – she was seen as more mature than the other students and, thus, was able to act as an assistant in the classroom.

Barcelos also reminds us that it is difficult to determine the influence of students' beliefs on teachers. Since teachers may not be aware of their students' beliefs, it is difficult to determine how these beliefs affect them. Barcelos suggests that the teachers' beliefs might have been influenced indirectly, in so far as the teacher acted in accordance with her own interpretation of the students' beliefs: the teacher gave students more explanations of grammar because she believed her students expected this.

Finally, Barcelos raises some key issues with regard to practice. She stresses the importance of:

- finding ways of preventing or dealing with potential conflicts between the teachers' and students' beliefs about second language learning;
- giving students more detailed feedback on their placement tests to avoid a sense of failure or other negative feelings;
- training teachers to be more sensitive to different contexts.

What is argued in this thesis is that these issues cannot be fully approached without students' active participation in defining and designing their own ESP classroom.

Mercer (2011) applied complexity theory to the study of the nature of learners' self-concepts and their development in the foreign language domain. According to the author, complexity theory "represents a way of understanding the world that replaces cause-and-effect, linear modes with organic, complex, holistic models composed of complex dynamic systems". The interest of this study was in the developmental aspect of self-concepts, and so just one participant was involved, who was selected because of her commitment to a prolonged period of research: a three-year longitudinal case study in which journal and in-depth interviews were used as data gathering instruments. The author concludes from the analysis that the learner's self-concept is a complex network consisting of an interrelated web of multiple layers of self-beliefs across different domains at various levels of specificity and differently related to context:

"[W]ithin a single language domain, some beliefs are expressed in more global, general terms, which are less immediately situational in nature, whereas others are more specific and more closely reflect ongoing contextual parameters and experiences" (p.343).

The author found that learner's self-concept presents both dynamic and relatively stable dimensions, for instance, some changed in accordance with contextual changes, whereas others were more stable and not immediately influenced by context.

Adopting the concepts of language ideology and positioning from linguistic anthropology and discursive psychology, De Costa (2011) conducted a year-long ethnographic study involving five immigrant students (from China, Indonesia and Vietnam) enrolled in an English-medium Singapore school. The researcher used observations, interviews and artefacts to collect data to address his research questions which were on which linguistic practices were valued and which denigrated in the school, what were the language ideologies embedded in these practices, how immigrant learners of English were positioned by others in the school and how they positioned others, and in what ways this discursive positioning and these language ideologies influenced learners' outcomes.

De Costa (2011) shows evidences about how ideology and positioning are enacted through interaction. For instance, one participant's interest in learning English was based on her belief that this would give her a job in an international company in

China. Her belief was clearly in line with the national English language syllabus adopted by the school in which emphasis is put on the use of acceptable international English. At the same time, she expressed the belief that Singlish (the English variety spoken in Singapore) had adulterated her English and she positioned people from Singapore as poor users of English. In terms of learning outcomes, the participant was assessed by her teachers as the one who improved the most, which suggests that she aligned herself with the dominant English ideologies of the school.

Benson and Lor (1999) adopted the framework of Phenomenography, and in particular the work of Marton (1981) on students' conceptions of learning. Phenomenography, according to Marton (1981), aims at finding out the different ways in which learners themselves experience, interpret, understand, apprehend, perceive or conceptualize the phenomenon of learning. According to Benson and Lor (1999), Phenomenography is grounded on two key assumptions:

1. "Conceptions do not reside within individuals".
2. "Conceptions are conceived as *relational* phenomena.

These assumptions mean that it is possible to identify, from interviews for instance, that interviewees express fragments of different conceptions and that these conceptions will not necessarily be stable over time. As such, Benson and Lor (1999) add that

"[T]he objective of phenomenographic research is, however, not so much to understand individuals in terms of the conceptions they hold, as to understand the nature of the conceptions themselves" (p.9)

The notion of conceptions of language and language learning is proposed by Benson and Lor as a higher level category which influence or 'condition' specific beliefs. The notion of approaches to learning is seen as a level category in which beliefs function in specific contexts of learning.

From interviewing 16 first-year undergraduate English students in the Arts Faculty at the university of Hong Kong, the authors found out that some of the learners' beliefs identified could be seen as conditioned by qualitative or quantitative conceptions of language and language learning. For instance, the belief represented by the statement "you need to pay attention to all aspects of the language" is associated with

quantitative conceptions in which language is seen as ‘a collection of things’ (grammatical concepts, word patterns, etc.), and language learning is seen as a process of memorizing its component parts by collecting, absorbing and assimilating the language. On the other hand, the beliefs represented by the statement “you have to pay attention to language in use” is associated with qualitative conceptions in which language is seen as “an environment to which the learner needs to be responsive in order to learn” (p.467), and language learning as a process of absorbing it in natural context of use.

Benson and Lor argue that the notion of approaches to learning is helpful in understanding the ways in which conceptions and beliefs are functional or dysfunctional within specific contexts of learning and how dysfunctional beliefs can be changed.

After looking at these four examples of the contextual approach, the one which is addressing a problem which is closest to the problem posed in the present research is Benson and Lor. In the next section I will give a detailed account of their approach and of criticisms of the approach in order to see how this can inform my study.

3.3 Theoretical positioning: conceptions of and beliefs about language learning

As mentioned above, Benson and Lor (1998, 1999) developed a three-level analytical framework made up of *conceptions of*, *beliefs about*, and *approaches to* language learning drawing on insights from the work of the educational psychologist Marton (Marton et al 1993, 1997, and Marton and Saljo, 1997) whose work was conducted within the framework of Phenomenography.

According to Marton et al (1993), the term ‘conceptions’ “encompasses two main component parts: a way of seeing *what* is learned and a way of seeing *how* it is learned” (p.278). In work conducted by Saljo in 1979 (cited by Marton et al, 1993) undergraduate students were interviewed and learning sessions were carried out to find out how students conceptualised academic learning. It was found that students regard learning in five qualitatively different ways: (1) a means of increasing

knowledge, (2) memorizing, (3) an acquisition of facts, methods, etc., (4) an abstraction of meaning, (5) an interpretative process aimed at understanding reality.

A number of studies since then have replicated this finding. Marton et al (1993), for instance, used data gathered in a 6-year longitudinal study which examined how undergraduate students reflected on their learning and their progress as learners during their university years. As well as finding the same range of conceptions as Saljo, the authors found a sixth one. Students also conceptualised learning as (6) changing as a person. The authors described these conceptions in the following terms:

1) Learning as an increase of knowledge

This conception of learning is of a quantitative kind. Learning is a process of accessing and storing pieces of ready-made knowledge.

2) Learning as memorizing and reproducing

This conception is also quantitative in nature. Learning is regarded as obtaining an exact reproduction of the learning material and is carried out for some kind of assessment.

3) Learning as applying

This conception is also of a quantitative nature. Applying means retrieving, storing, and using what has been learned. It is different from 1 because of its emphasis on application, and from 2 because the application is not simply carried out for formal assessment.

4) Learning as understanding

While the three conceptions mentioned above are considered as quantitative, this conception, and the next two can be viewed as qualitative. What differentiates these last three is their relation to *meaning*. Learning is seen as developing some form of meaning in or from the learning material. In this particular conception, this can be thought of as an understanding of ideas.

5) Learning as seeing something in a different way

This conception emphasizes a change in the learners' way of thinking about something.

6) Learning as changing as a person

This conception is related to the two previous ones: by understanding a phenomenon, the learner acquires a new way of seeing it and, thus, changes as a person.

In another paper, Marton and Saljo (2005) discuss the relationship between conceptions of, approaches to, and outcomes of learning. They argue that "if the outcome of learning differs between individuals, then the very process of learning which leads to different outcomes must also have differed between individuals" (p.40) and point out that this is underlying assumption underlying their earlier work such Marton (1974). In searching for evidence to confirm this, the students were asked to read an academic article and told they would have to answer some questions about it later. They were also asked about how they approached this task. Marton first found out that there were qualitative differences in the students' understanding of the article: some of them focused on the text itself, whereas others focused on what the text was about. In addition, these differences stemmed from the different ways the students approached the task. One group of students concentrated on memorizing the article so that they could remember it later. They used what was called a 'surface approach' to learning. The other group of students tried to understand the article by looking at, for instance, its underlying concepts. They used what was called a 'deep approach' to learning.

Marton et al (1993) argue that the line separating the surface and deep approaches can be traced to the differences between conception 1, 2, 3 and 4, 5 and 6: this is because although meaning "is absent in the first three conceptions, it has a most central role in the last three conceptions" (p.288).

Benson and Lor (1998, 1999) established an analytical framework based on the qualitative and quantitative distinction which is used in part within this study described in this thesis. The study outlined in the paper by Benson and Lor from 1998 is based on data collected from interviews which formed part of an evaluation of a programme to encourage Chinese students to adopt a more independent approach to learning. The authors tried to link students' conceptions of language and

language learning to their readiness for autonomy. In this study, the authors identified three domains of beliefs: beliefs about language learning, beliefs about self and beliefs about the learning situation.

The authors found that students regarded work, method and motivation as important factors in language learning. Benson and Lor associated each of these beliefs with either quantitative or qualitative conceptions, a distinction based on the classification of ways of experiencing learning described by Marton et al (1997):

“...the object of learning (language) is conceived of as a collection of things (quantitative) or as an environment (qualitative). The process of language learning is conceived of as a process of accumulation (quantitative) or as a process of exposure (qualitative) and as a process in which the pieces of language are passed to the learners by teachers (quantitative) or as a process in which the learner comes to terms with the unfamiliarity of the language environment with or without the aid of teachers (qualitative).” (p.30)

In a subsequent study Benson and Lor (1999) described beliefs about language learning as follows:

	Work	Method	Motivation
Quantitative	<p>You have to put in effort</p> <p>You have to practice</p> <p>You need to spend time</p>	<p>You need a teacher</p> <p>You have to build a good foundation</p> <p>You need to pay attention to all aspects of the language</p>	<p>You need to be pushed by a teacher</p>
Qualitative		<p>You have to identify your needs</p> <p>You have to pay attention to language use</p> <p>You have to expose yourself to the language</p>	<p>You need to be in an environment that forces you to learn a language</p> <p>You need to be self-motivated</p> <p>You need to gain a sense of self-satisfaction from learning</p> <p>You need to follow your own interests</p>

Table 3.1: Learners’ beliefs about language learning (Benson and Lor, 1999)

From perspective of Benson and Lor, conceptions and beliefs can be understood as two levels of representations concerning the nature of language and language learning. Conceptions are seen as being at a “higher” and more “abstract” level than

beliefs, that is, while beliefs can be grasped more or less directly from data, conceptions call for a further level of analysis. However, when looking at beliefs about the situational context and self, the authors found that not all beliefs could be seen as being conditioned either by quantitative or qualitative conceptions.

Benson and Lor (1999) also describe the relationship between conceptions and approaches, that is, between what the learner thinks the objects and the processes of learning are and what they in fact do when trying to learn a foreign language: a learner who, for example, conceives language quantitatively is likely to consider memorizing as a helpful approach to learning, whereas a learner who conceives language qualitatively is likely to attach importance to an interaction with others.

Benson and Lor (1998) interest in autonomy is based on their view of this issue as being when students have control over their learning and as something which encompasses “active involvement in the learning process, responsibility for its content, control over factors such as time, frequency, pace, settings and methods of learning, and critical awareness of purposes and goals” (p.8). The authors departed from evidence of earlier studies (Ramsden et al, 1989; Watkins, 1996) which suggest some link between deep approaches to learning to autonomy. Watkins (1996), for instance, suggests that

“...for students to want to adopt a deep-level approach to learning requires confidence in their own academic ability, and a belief that they should not rely too much on the teacher but accept responsibility for their own learning.” (Benson and Lor, 1998, p.13)

Benson and Lor (1998), then, raised the following hypothesis: “[I]f autonomy is associated with deep approaches to learning, then it may also be associated with conceptions of learning as understanding, seeing things in different ways and personal change” (p.15).

After analysing what learners said about language learning, the situational context and self, Benson and Lor (1998) concluded that if learners adopt quantitative conceptions of language and approach learning as if it is simply the accumulation of its component parts, “they are less likely to respond positively to autonomy” (p.60). In contrast, if they adopt qualitative conceptions of language and approach learning through a range of social and communicative strategies, “they are more likely to

respond positively to autonomy” (p.60). However, this relationship is not straightforward; these conceptions are based on a complex relationship between beliefs about language learning, situational context and self. Borg and Al-Busaid’s (2012) recent study on autonomy, for instance, raises a number of key themes which are often interlinked and these are, for instance, institutional and individual constraints on learner autonomy, the different meanings of autonomy in different cultural contexts, individual and social dimensions of learner autonomy. The authors used questionnaire and interviews to investigate, among others issues, the meaning of ‘learner autonomy’ to English language teachers in a language centre at Sultan Qaboos University in Oman. From this study, the authors found out that, from four dimensions (i.e. political, social, psychological and technical), the one which was most supported was the psychological dimension while the least supported was the social dimension, that is, autonomy for these teachers implied a set of skills or abilities that learners need to master (e.g. self-monitoring, self-assessment) but not so much co-operation and social interaction.

Benson and Lor (1999) make an important claim that conceptions and beliefs are “relational and responsive to context” (p.464) and manifested in the kind of approaches adopted to learning. These approaches operate in a particular context of learning and are constrained by the conceptions learners have at that specific time. This leads to two different issues: the question of whether conceptions, beliefs and approaches are functional or not in a specific context, and whether it is possible to induce a learner to adopt one conception rather than another, one that might be more functional in specific contexts.

3.3.1 The functionality of conceptions, beliefs and approaches

Benson and Lor (1999) argue that conceptions, beliefs and approaches might be either functional or dysfunctional, that is, they might or might not enable learning to occur within a particular context. The authors suggest that:

“..quantitative conceptions and approaches may be functional within an examination-oriented [...] educational system in which language is presented to learners as a collection of items to be learned. Qualitative conceptions and approaches are more likely to be functional where the context is one in which learners are readily able to immerse themselves in target language use” (p.469).

However, Benson and Lor do not consider the cultural nature of functionality as Marton and Saljo (2005) do. Marton and Saljo (2005) cite an interview study with Hong Kong students which demonstrated that the students first seek to understand the learning material, and then try to memorize it. Marton et al (1997) had earlier argued that, although the Chinese practice of teaching is grounded on memorizing, it is a normal practice for Chinese learners to understand and memorize at the same time. As Marton and Saljo (2005) point out, memorisation and understanding are linked in a continuum – not in opposition as in Europe, for example. In this study, the authors set out four ways of experiencing learning:

1. Learning as committing to memory (words);
2. Learning as committing to memory (meaning);
3. Learning as understanding (meaning);
4. Learning as understanding (phenomenon).

Marton and Saljo (2005) identified three temporal facets of each conception: acquiring, knowing and making use of. The first conception of learning is characterised by the act of memorizing words, and remembering them so as to be able to reproduce them later. The second conception is characterised by the act of memorizing meaning and remembering in order to reproduce it later. The third conception of learning is characterised by the act of gaining understanding and employing this understanding to handle different situations. The fourth conception of learning is characterized by the act of gaining understanding and being able to relate this understanding to all other knowledge and understanding.

<i>Way of experiencing learning</i>	<i>Temporal facet</i>		
	<i>Acquiring</i>	<i>Knowing</i>	<i>making use of</i>
committing to memory (words)	memorizing (words)	remembering (words)	Reproducing (words)
committing to memory (meaning)	memorizing (meaning)	remembering (meaning)	Reproducing (meaning)
understanding (meaning)	gaining understanding (meaning)	having understanding (meaning)	being able to do something being able to do something differently being able to do something that is different
understanding (phenomenon)	gaining understanding (phenomenon)	having understanding (phenomenon)	Relating

Table 3.2: Conceptions of Learning (Marton et al, 1997)

One distinction between the way conceptions are defined in the previous study (Marton et al, 1993) and here (Marton et al, 1997) is that, formerly the dividing line was between the absence and the presence of *meaning* while here the dividing line is between *committing to memory* and *understanding*.

3.3.2 Influencing students' conceptions, beliefs and approaches

Although Benson and Lor suggest that dysfunctional conceptions, beliefs and approaches can be changed, they do not discuss how that can be done. With regard to the possibility of inducing different conceptions, Marton and Saljo (2005) describe two studies carried out to induce students to adopt a 'deep' approach. Setting out from the view that students who adopt a surface approach address the learning task

without an active and reflective attitude, the researchers tried to give them some hints on how to approach the task differently. 30 students from the areas of political science, economics and sociology took part in the first study. They were divided in two groups: one took part in the experimental intervention and the other was the control group. All of them were given a chapter of a book which formed a part of their normal studies and the experimental group was given a set of questions which had to be answered during the reading task to induce a deep approach to learning. However, the results showed that the control group performed much better since the group who took part in the experimental intervention adopted a surface approach. The authors claimed that: “the questions which were intended as means of helping students to adopt a deep approach instead became the objective towards which the learning was geared” (p.51). That is, the students focused on the task itself which is a characteristic of a surface approach. While in the first study the questions were given *during* the reading task, in the second study the questions were given *after* reading a number of chapters from a text-book. 40 students divided into two groups took part in this study. One group was given a set of questions that were designed to induce a surface approach, for example by focusing on factual information such as names, percentages, and so on. The second group was given a set of questions with less factual information being required and including questions to induce a deep approach as, for example, understanding how inferences could be made from a developing argument. After reading the final chapter, both groups were given both kinds of questions. The results show that most participants tried to adapt their learning to the demands implicit in the questions that were asked after each successive chapter. The first group reacted as expected and adopted a surface approach. However, in the other group, not all the students adopted a deep approach since they interpreted the requirements of the task in different ways or, as the authors expressed it, some of them *technified* the learning task: they were able to summarize the text but not demonstrate understanding. The authors finally concluded that

“[I]t is obviously quite easy to induce a surface approach and enhance the tendency to take a reproductive attitude when learning from texts. However, when attempting to induce a deep approach the difficulties seem quite profound” (p.53).

One of the factors discussed by Marton and Saljo (2005) which is a cause of this failure in inducing a deep approach is due to the factors that motivate students to

learn. The authors suggest that “if we want to promote a deep approach, we should above all have in mind the students’ own interest at the same time as we should try to eliminate the factors that lead to a surface approach (irrelevance, threat and anxiety)” (p.54).

A possible position regarding the issues of functionality and change is given by Trinder (2013) who based his study on Benson and Lor (1999) analytical framework. Trinder investigated first and fourth year business students enrolled in an ESP module at Vienna University of Economics and Business in order to identify their beliefs about successful language learning. The author explored students’ conceptions of learning on their use of strategies and juxtaposed these to students’ evaluation of the ESP module. By using questionnaire and interviews to collect both quantitative and qualitative data, the author found out that both first and fourth year students share qualitative conceptions of language by stressing that languages are best learned by exposure to the target language and through oral communication. However, this seems to apply to informal (e.g. immersion programs) rather than formal learning contexts (e.g. ESP classroom). On the other hand, the ESP module, because of contextual constraints (e.g. number of students in class), stresses the knowledge of content and terminology. Looking at this mismatch, the author found out that successful students seem to adapt their learning strategies to fit the occasion and see learning opportunities in all occasions while unsuccessful students seem to react with disillusion and adopt more surface approaches to learning. Finally, the author suggests that knowing students’ conceptions and preferred strategies can lead to two possible pedagogical moves. First, the teacher should, to whatever extent is possible, accommodate students’ learning preferences or, secondly, understand students’ metacognitive knowledge and explicitly address curricular goals and constraints as well limiting beliefs and underused strategies. The author suggests that:

“Enhancing students’ metalinguistic awareness early on would be one way of equipping them with (some of) the necessary tools to tackle the novelty of business English at the university level and encouraging them to stretch their learning styles to be functional in formal as well as in out-of-class learning contexts” (p.9).

Based on the discussion above and on the application of Benson and Lor's (1999) analytical framework on the present research, conceptions and beliefs can be defined as follows:

- *Conceptions* of learning are conceived of as what the learner thinks the objects and the processes of learning are.
- *Beliefs* about learning are conceived of as what the learner holds to be true about these objects and processes.
- *Conceptions* of language may be gauged from what students say about learning a foreign language, that is, their *beliefs* about learning, and by what students do in order to learn a foreign language, that is their approaches to learning.
- *Conceptions* of language can be either qualitative or quantitative. Qualitative conceptions convey a view of language as “an environment to which the learner needs to be responsive in order to learn” (p.467), and to a view of language learning as a process of absorbing it in natural context of use. Quantitative conceptions convey a view of language as ‘a collection of things’ (grammatical concepts, word patterns, etc.), and to a view of language learning as a process of memorizing its component parts by collecting, absorbing and assimilating the language.
- *Conceptions and beliefs* are considered by Benson and Lor as “relational and responsive to context” (p.464). Beliefs “can be understood as cognitive resources on which students draw to make sense of and cope with specific content and contexts of learning” (p. 462). As such, beliefs and conceptions are manifested in approaches to learning. These approaches will operate in particular contexts of learning, and their effectiveness in a particular context enables us to “to understand the functionality of conceptions and beliefs and the ways in which they may be open to change” (p.471).

It is hoped that this distinction between conceptions and beliefs, as explored in this study, will allow an understanding of the way students construct the ESP classroom, which can be defined as an organised collection of beliefs that can be held by the students.

3.4 Conclusions

The main aim of this chapter was to understand the nature of learners' beliefs about language and language learning in general and how these beliefs can be accessed. Whilst in the past the value of learners' perceptions of the classroom was not recognised or seen as unsophisticated compared with those of the teachers, a range of studies has shown how valuable, full of conflict and complex these beliefs are.

The different approaches to investigating the students' beliefs were been classified by Barcelos and Kalaja (2003) as normative and contextual, each having its particular benefits and drawbacks. The choice of one rather than another is, initially, a methodological question; the research questions posed above (Chapter I) define this research as having a contextual approach since its focus is on understanding "participants' perspectives and the way they organize their perceptions of events" (Barcelos and Kalaja, 2011).

It is anticipated that the way students construct the ESP classroom can be described through an analysis of their conceptions of, and beliefs about, language and language learning. It is expected that this construction will emerge more concretely from their participation in the design of a Web Portal to support ESP learning and teaching than in their answer to interview questions. An understanding of the students' constructions within this context is expected to shed light on their own view of their learning needs. Thus, in this research students are expected not only to voice, but also to reflect on and to confront their conceptions and beliefs within a specific context.

Finally, it is hoped that this research will produce a better understanding of the usefulness of data about beliefs which can be gathered from learners' involvement in a Participatory Design process. Participatory approaches, their values and complexities, still need further studies within the ESP area, and so Participatory Design will be discussed in detail in the next chapter.

CHAPTER IV

RESEARCH TECHNIQUES WITHIN THE CONTEXTUAL APPROACH

4.1 Introduction

In this chapter, I discuss different techniques used, within the contextual approach, to collect data about students' beliefs about second language learning.

In Barcelos and Kalaja's (2011) review, a number of techniques are listed and some of them, which aim at eliciting students' beliefs from their own perspectives will be briefly discussed here. They are: interviews, stimulated recall and phenomenographic interview. Finally, I discuss the possibility of adopting a Participatory Design (PD) approach to the design of technology. My argument is that PD can be used as a means of creating a space in which students can verbalize their beliefs about ESP teaching and learning and confront these beliefs within this specific context, whilst also involving them in the process of integrating the technology available for ESP teaching and learning.

4.2 Research techniques for eliciting beliefs

Interviews

According to Long (2005), "the more direct way of finding out what people think or do is to ask them" (p.35). According to the author, interviews allow the researcher to certify that all issues were covered, to clarify possible misunderstandings and to follow interesting issues which were unforeseen. The use of interviews is widely reported in studies of beliefs. The use of semi-structured interviews as a means of gaining access to learners' beliefs about language learning comes from what Kalaja and Barcelos (2013) call "the classic" period. As mentioned before (Chapter 3), this was the instrument used by Wenden (1986) to obtain learners' verbal reports and so

determine their knowledge of the language learning process. Even though interviews have the advantage of allowing students to discuss and reflect on their experience and to give an account of it on their own terms, they do present some weaknesses as a research instrument. In general, the data collected might suffer interferences from the interviewer who might influence interviewee's responses directly or, indirectly because the interviewee might give an answer what he or she thinks the interviewer wants to hear (Long, 2005). The use of interviews also suffers from the weakness that it is gathering data about learners' beliefs which are derived abstractly since they are derived from learners' descriptions rather than inferred from learners' action that is, from the context which shapes and is shaped by these beliefs (Barcelos, 2003).

Although interviews are widely used even within the contextual approach to the study of beliefs, they are usually triangulated with other research instruments. The 39th special issue on beliefs published in 2011 by *System* demonstrates how widespread this approach is: from the eleven papers published, nine used interviews as one of the sources for data gathering. From the eleven studies published, Yang and Kim (2011), for instance, describe the use of interviews, journal entries, autobiographies and stimulated recall to investigate learners' beliefs in study-abroad contexts. Aragão (2011) used, among others instruments, interviews, learning journals, notes from informal conversations and participant observation and learners' drawings to investigate the relationship between beliefs and emotions.

Stimulated recall

One technique which can be used to help learners to reflect on and confront their beliefs is stimulated recall. According to Gass and Mackey (2000), stimulated recall is a kind of a retrospective report and is used to explore learners' thought processes (or strategies) after they have completed an activity or task. Learners receive some kind of support for the recall as in the study mentioned above by Yang and Kin (2011). The researchers used the stimulated recall instrument as a means of investigating learners' beliefs in study abroad contexts. In order to support learners' recall, participants were asked to bring memorable pictures or objects that recalled their study-abroad experience. Stimulated recall can be useful in order to establish possible relationships between beliefs and actions, however, as with all research instruments, stimulated recall needs to be applied with caution. As Gass and Mackey

(2000) argue, people tend to create explanations and their recall might not necessarily be an accurate portrayal of what really happened.

In his PhD thesis, Zhong (2012) used this instrument (and interviews, diaries, class observation and tests) in order to investigate the relationship between adult Chinese students' beliefs about learning English as a foreign language, the strategies used for this task, and the impact of both on learning outcomes. The author used stimulated recall in order to get data on the learners' beliefs that underpinned the learning behaviors in the classroom. Video/audio-tapes, class documents (e.g. handouts, worksheets) and class observation notes were used to get the learners' interpretations of their class learning behaviors and to elicit the learners' views about their learning in the classroom setting.

Phenomenographic Interview

As mentioned in Chapter 3 (Section 3.3) Phenomenography is a research approach that investigates the different ways people construe the world. Phenomenographic data collection usually revolves around interviews and can be exemplified by Marton's study (1974) mentioned Chapter 3 (Section 3.3). In this study, participants were given a task (i.e. to read an academic article and answer some questions) and interviewed to obtain their accounts of how they performed this task.

Within the phenomenographic domain, interviews have a specific focus. According to Bruce (1994), the focus is not on the interviewee or on the theme of the interview, but on how the theme is experienced by the interviewee. According to the author, the interviewer's role is "to try to see the phenomenon as it is seen by the interviewee" (p.50). However, the critique made above by Gass and Mackey (2000) to stimulated recall can be also applied here: people tend to create explanations and their recall might not necessarily be an accurate portrait of what they experienced.

Yang and Tsai (2010) used a phenomenographic approach to investigate college students' conceptions of and approaches to learning English as a foreign language through online peer assessment. The authors initiated their study by raising hypotheses such as whether students' conceptions of learning via online peer assessment would be associated with students' approaches to learning via online peer assessment.

In this investigation, students were asked to (i) submit their assignments via an online system for peer assessment, (ii) give comments and suggestions on their peers' assignments also via the online system, (iii) review their own assignment after getting their peers' comments and suggestions. All students assessed their peers' work three times and revised their own work twice. After this task, students were interviewed about their experience with the online peer assessment

Next, the use of Participatory Design approach, not usually used within the educational domain, will be discussed as a means of investigating students' beliefs.

As explained at the start of this chapter (4.1), the use of a Participatory Design (PD) approach to design a Web Portal in support of ESP learning and teaching was intended to meet two goals. Firstly, students' participation in the design process is expected to create a space where students can verbalize and confront their beliefs about ESP learning and teaching. Secondly, student's participation in the design process is expected to involve them in deciding how the technology available within this context is to be used.

4.3 Participatory Design

Techniques such as workshops and prototyping are used within the as a means of supporting users' participation in the design of systems. The interest here is, however, on Participatory Design techniques as a means of investigating students' beliefs which may not be available via the techniques discussed above which are based on students' reports of their explicit beliefs. These techniques are discussed next, however, some issues involving in Participatory Design are discussed before.

4.3.1 PD ideals

According to King (2010), "Participatory Design (PD) is about design and about participation in design by people who are potential users of the result of the design activities".

With its origin in Scandinavian countries in the 1960's, the main goal of PD was initially to hold discussions about how democratic design practices can be introduced into industrial settings (Ehn, 1992). As Gregory (2003) points out, the Scandinavian PD practices are characterised "by political commitments to societal concerns and relationships with particular users and communities" (p.2). In addition, the Scandinavian PD approaches "emphasise change and development, not only technological change and systems development, but change and development of people, organisations, and practices, occurring in changing socio-historical contexts" (p.2). However, according to King (2010), there has been a "development in ideals" since most PD projects today do not discuss democracy, but user participation and design results. This might be due to the limited nature of democracy as identified by Ehn (1992) since the ideal of democracy, within the industrial setting, is bounded by "the constraints imposed by the market economy and the power of capital" (p.2). The author also adds that using a PD approach involves recognizing the existence of differently positioned actors: "there are differences in interests and power between skilled and unskilled workers, between men and women, between workers organized in different trade unions, etc." (p.5). However, collaboration must not be avoided simply because of the risk of disputes but rather, there is a need to foster a movement "towards an understanding that supports more creative ways of thinking and doing design as participatory work (involving the skills of both users and designers)" (p.15). On form of supporting the different positioned actors is to use different design techniques.

4.3.2 PD techniques

As well as its political concerns, PD is also interested in the technical aspect of users' participation i.e. the users' active participation in the design process as a means of bringing about better systems design. A number of authors support this idea. Muller et al (1997), for example, point out that "no single person or discipline has all the knowledge that is needed for system design. Direct participation by end-users is seen, in this context, as a means of enhancing the process of gathering (and perhaps interpreting) information for system design" (p. 258). As the authors add, PD can also lead to a better acceptance of the product by the end-users: "a system is more

likely to be accepted by its ‘downstream’ end-users if those users are involved in certain ‘upstream’ formative activities” (p.258). Kensing and Blomberg (1998) also point out that “[M]aking room for the skills, experiences, and interests of workers in systems design is thought to increase the likelihood that the systems will be useful and well integrated into the work practices of the organization” (n. pag.). However, it is widely recognised that the participation of users in the design process is not enough in itself to ensure improved system usability and usefulness, or its acceptance by the end-users. As Bodker and Iversen (2002) stress, participation has to be “structured, facilitated and interpreted into directions for future design” (p.11).

In order to support user participation a number of techniques are used (see Muller (2002); Spinuzzi (2005); Brandt and Messeter (2004); Büscher et al (2004); Sanders and Binder (2010)). These techniques include activities such as prototyping, ethnographic practices (observation, video-tape recording), walkthroughs, stories, bricolage (DIY), diaries, and games. These techniques can be used simultaneously or at different stages of the design. It is the context that will dictate which technique is most appropriate and to what extent they are used to elicit participation (e.g. ethnographic-based techniques are used when more attention has to be devoted to the social organization of current practices (Crabtree, 1998)). Two of these techniques – workshops and prototyping, are used in this research, and are discussed in more detail.

Design workshops

Design workshops, have been a part of the PD technique repertoire since its early days (Kensing and Bloomberg, 1998). Muller (2002) points out that this technique is used to help the different participants “communicate and commit to shared goals, strategies and outcomes” (p.9). Bloomer et al (1997) add “it is important both to find users who get along well with each other and to avoid power differences (...)” (p.33). However, firstly, a conflict-free context is not easily found and, secondly, it may not be desirable since a PD approach values differences of perspective.

In view of the fact that different participants are involved in design, the design workshops offer the following benefits, as outlined by Muller (2002):

- They help to bring about new concepts that have a direct, practical value for product design.
- They encourage the engagement of the interested parties in the process and outcomes of the workshop.
- They merge different people's ideas into unified concepts.

As the author points out, “they are thus opportunities that require mutual education, negotiation, creation of understanding, and development of shared commitments” (p.10).

Prototyping

Prototyping, according to Spinuzzi (2002), can be used to “draw workers into the design process and make them designers (...)” (p.209). In the construction of prototypes or simple models of the proposed system, participants are mainly involved in practical design exercises in which, for example, they simulate their practice in an easy and inexpensive way. This technique can take different forms, from paper-and-pencil versions of the interface (low-tech prototypes) to detailed simulations on the computer (software-based prototypes).

Muller (2002) argues that the benefits of using low-tech prototyping are that:

- It enhances communication and understanding by basing discussions on concrete artefacts.
- It enhances the incorporation of the participants' new and emerging ideas.
- It improves working relationships.
- It offers the opportunity for a measured degree of success with practical applications.

Software-based prototyping also offers its own benefits as well:

- It provides an earlier understanding of the constraints imposed by the software.
- It offers an opportunity to improve the contextual basis for design in the practices of the end-users.

4.4 PD approach to eliciting beliefs

When incorporated in a PD approach, the design techniques mentioned above, together with other techniques (e.g. games, drama) are expected to help users to express their needs and to become conscious of the nature of their beliefs. This proposition is supported by Muller (2002) who argues that the use of different design techniques supporting collaborative work between designers and users creates a space “for new insights and understanding” (p. 2), “introduces novelty, ambiguity, and renewed awareness of possibilities” (p.7), “brings people into (...), renegotiation of assumptions, and increased exposure to heterogeneity” (p.8), and creates shared knowledges and even the procedures for developing those shared knowledges” (p.9). Williams (2002) argues that user participation in prototyping sessions helps them not only to convey but also to extend their ideas. Gregory (2003) argues that PD displays tacit knowledge and shared knowledge that is taken for granted and, therefore, usually unspoken or invisible. On the same lines, Spinuzzi (2005) states that the object of study in participatory design is “what people know without being able to articulate” (p.165). The author adds that Participatory Design is also about preserving tacit knowledge and designing technologies to *fit into* the existing web of tacit knowledge, workflow, and work tools, rather than ignoring them.

Examples of the use of PD in eliciting users’ knowledge are exemplified by Carroll et al (2000) and Triantafyllakos et al (2008, 2011). Carroll et al (2000) describe the way public school teachers work in collaboration with designers, to define, improve and assess network-based support for collaborative learning. The teachers took on different roles during this process. At first they acted as *practitioner-informants* by providing designers with their domain information through interviews and classroom observation. Teachers also acted as *analysts*. The authors state that “(b)y publicly objectifying their own knowledge (...) the teachers appropriated the license not merely to testify about events in the classroom, but to make sense of those events with the respect to the project’s goals” (p.244). Acting as *designers* in prototyping sessions, encouraged teachers not only to articulate problems but also to suggest solutions. Teachers also acted as *coachers* to other teachers: “they also seemed to benefit from the exercise of externalizing and reconstructing their experience in order to convey it others” (p.246).

Triantafyllakos et al (2008) describe their We!Design methodology in the design of two educational applications - an electronic assessment system and a course website – which was employed in collaboration with undergraduates studying Computer Science. Two phases are described here. First, during the workshops, the students built an account of a set of needs based on their prior experience, strategies, problems and goals or by imagining the facilities that could be offered. The students also defined their priorities. Later they described a task sequence, agreed on a single task sequence for each need and engaged in low-tech prototyping. Secondly, after gathering and analysing the product resulting from the workshops, the designers synthesised a single application and gave it to the students for their assessment. Although the authors give no examples, they claim that “when students started to state their needs, some general contexts of needs emerged. Those contexts were definitive in the formation of new needs (...)” (p.134).

In a further application of this methodology (Triantafyllakos et al 2011), the authors explored how to develop collaborative design games (We!Design&Play) that can be used in PD workshops with students for the design of educational applications. These board game designs, with the set of appropriate stimuli, rules and props, are expected to help students in organizing and expressing their needs and ideas in a comprehensible and explicit way. The authors assess the structure of the game framework in positive terms, arguing that its use “added to the production of a fruitful set of unexpected, diverse and appropriate needs and ideas” (p. 240).

Adopting a participative approach, Hinostroza and Mellar (2000) invited a group of teachers to join a software engineer, a psychologist and a graphic designer to develop a piece of educational software over a period of seven months. The main aim was to explore teachers’ conceptions and beliefs about educational software. The workshops were observed and video/sound recorded. Data was analysed from three angles. The analysis of individuals’ participation aimed at establishing participation profiles and revealed, for instance, that no one perspective dominated the process. The analysis of sequences aimed at establishing the topics discussed by the teachers as, for instance, interaction and action characteristics of the piece of software being developed. The content analysis revealed, for instance, the beliefs teachers held about the use of computers in the classroom.

The involvement of teachers in the design process in this study brought to light some interesting issues for the present research. First, users are not necessarily aware of their practice. Teachers referred to the aims of using computers at an abstract level without considering the benefits of the piece of software being developed. Second, users' knowledge and experience were not shared by other members of the design team. It was possible to identify teachers' discussions which were similar to one another but different from those of the other participants and this led the researchers to argue that teachers made decisions based upon their professional knowledge and experience which was not available to the rest of the participants. Finally, these teachers thought about computers as having the role of a tool for pupils' rehearsal activity and as a tool for classroom management. They also thought about their own role as computer helpers and classroom managers. They did not define for themselves any kind of interaction with the computer.

4.5 Conclusions

This chapter set out to discuss different research techniques used in order to investigate students' beliefs about language and language learning within the contextual approach which investigate participants' perspectives and the way they organize their perceptions of events within the language classroom (Barcelos and Kalaja, 2011).

Three commonly used techniques were first presented: interviews, stimulated recall and phenomenographic interviews. The value of these techniques is relative to the research questions being asked. In the case of the present research the interest was on going further than simply collecting abstract statements from students.

I discussed here the use of a Participatory Design approach to the design a Web Portal to support ESP learning and teaching as a means of also gaining more concrete data about the students' conceptions and beliefs about language and language learning. The existing methods have not provided a full picture of students' conceptions and beliefs. The literature on the knowledge users bring to the design process supports an argument that the students' involvement in the design process is likely to create the necessary space where beliefs about the ESP classroom can be

verbalized, confronted within specific contexts, and transformed into learning gains. The use of this approach is expected to provide a useful contribution to answering Research Question 2.

Two Participatory Design techniques, workshops and prototyping, were discussed as a means of creating opportunities in which students could verbalize their beliefs about ESP teaching and learning and confront these beliefs within this specific context. How this was put into practice is discussed in the next chapter.

CHAPTER V

METHODOLOGY

5.1 Introduction

In this chapter I present an account of the methodology used in this research. Firstly, there is a description of the context of the research, that is, the institution in which the research was carried out and some information about the participants. Next, the research methods used and the process of data analysis are presented. Finally, some ethical procedures taken are discussed.

The focus of this research is on the way students construct the ESP classroom with regard to factors such as language, language learning and teaching, and the use of computer technology within this context. More specifically, the nature of this concern is described in the following research questions:

1. How do students construct the ESP classroom, that is, ESP teaching and learning, and the possible integration of technology within this context?
2. To what extent does students' involvement in the process of designing educational for ESP bring to the light different elements of this construction?

As discussed in the previous chapter (Chapter 4, Section 4.2), different research techniques could have been used in order to investigate these research questions. In an attempt to gain more concrete data regarding students' construction of the ESP classroom, a Participatory Design (PD) project was carried out: Computer Science students were invited to join their ESP teacher, a Software Engineering teacher and the researcher, to design a Web Portal that could be used as an aid to ESP learning and teaching. PD techniques were used: workshops and prototyping. Data was collected through recordings of these workshops, students' entries in online diaries, and individual interviews.

The present research can be roughly described as qualitative. Although whether it can be regarded as ‘naturalistic’ is an open question, it can be positioned within a qualitative approach as defined by Denzin and Lincoln (1998):

“Qualitative research involves the studied use and collection of a variety of empirical materials (...) that describe routine and problematic moments and meanings in the individuals’ lives. Accordingly, the qualitative researcher deploys a wide range of interconnected methods, hoping always to get a better fix on the subject matter at hand” (p. 03).

Thus, this research should not be regarded as qualitative simply because there is no quantitative approach for data analysis (e.g. measures, frequencies and scores). It is qualitative in the sense that it aims to interpret the constructions individuals make of a particular issue within a particular context. To achieve this objective, different methods of data gathering were used, which are discussed below (5.4). Before that, however, some more information about the research context is provided next.

5.2 Context of the Research

The campus of the Universidade Estadual do Oeste do Paraná (UNIOESTE), in Foz do Iguaçu, Brazil, is located on the border with Spanish-speaking countries (e.g. Argentina and Paraguay) and also has a large tourist industry, with tourists coming from all over the world, and which also has good prospects of creating a significant technological centre. Among the courses offered on the campus, the Computer Science one was created to train students to act and specialize in areas such as developing new technologies, forming new business ventures, and carrying out research. Students are also trained to recognise the impact that technology has on the social sphere, the digital divide in developing countries, the need to support community action, and the integration of companies with educational institutions in Brazil, Argentina and Paraguay.

At the time this investigation was carried out, the Computer Science course was divided in four academic years with a total of 3.720 hours of study. A group of forty students, mainly male students, enrolled in the first year of the course which offered ten different compulsory modules:

	MODULE	NUMBER OF HOURS PER WEEK	NUMBER OF HOURS PER ACADEMIC YEAR
01	Scientific Methodology	2	60
02	Writing Techniques	2	60
03	Technical English (ESP)	3	90
04	Sociology Applied to Computing	2	60
05	Introduction to Management	2	60
06	Computing I	5	150
07	Differential and Integral	5	150
08	Calculus	4	120
09	Geometry and Algebra	4	120
10	General Physics and Basic Electronics	2	60
	Physical Education		

Table 5.1: Computer Science Programme: 1st year.

Although there is no official account, the dropout rate is usually high in the course in general. For instance, from the eight students who accepted to participate in this research, only three of them obtained the degree: two of them in in the regular time (i.e. four years) and one of them took in six year to finish. One of them moved to another institution and four left the course.

As in the table above, the module of English for Specific Purpose (ESP) which is known as ‘Technical English’ had 90 hours spread throughout the academic year, with a three-hour class per week.

The ESP teacher invited was an English teacher since 1975 and, at the time of the research, she already had a Master Degree in English as a Foreign Language and had just obtained a PhD degree in Applied Linguistic. Part of her PhD Program was made at the University of California-Irvine.

The ESP module designed by the teacher is about “the study of the main grammatical points which interfere in comprehension and interpretation of technical texts related

to the area of computing” (Unioeste, 2002, p.1)¹¹. The module aim is to “develop the knowledge for the comprehension and interpretation of technical texts related to the area of computing”¹² (p.1). The module content is not defined by following a specific textbook or by pre-defined texts, rather, it is defined by functions (e.g. expressing comparison, expressing events in the past/future, explaining, giving examples), with the support of texts which are chosen during the academic year. The teaching of technical vocabulary is also present in the content area. The methodology to be used is directed to the development of reading comprehension of up-to-date technical texts in the area of computing. The assessment area is not very clear in terms of assessment criteria, for instance; it just says that students will be assessed by “written tests” (p.2). Finally, the supporting bibliography is based on grammar books (e.g. *Essential Grammar in Use* (Murphy, 1990)), English dictionaries (e.g. *English dictionary for Portuguese speakers* (Konder, 1995)) and ESP books for computing (e.g. *Infotech* (Esteras, 1996)).

In general, the main ESP features are as follows:

- It is designed to meet learners’ needs (i.e. reading technical material);
- It is related to the content (i.e. up-to-date themes and topics) related to computing;
- It is centred on the language (e.g. grammar and vocabulary), skills (reading) and genres (e.g. technical papers) related to these technical modules on computing.

The pragmatic nature of ESP, that is, the fact that it seeks is to help students function within specific contexts (i.e. academic or professional), is one of its positive features.

5.3 Gaining Access

Although the researcher was an ESP teacher at this University, she was on study leave at the time the research was carried out. Thus, to gain access to the setting where the research was being conducted the researcher contacted the Computer

¹¹ My translation

¹² My translation

Science course supervisor. A formal letter was sent to him explaining the overall aim of the research and asking permission to make contact with this group of students.

The campus director was also contacted so that access could be obtained to the physical spaces (e.g. the meeting room and computer lab) and physical and human resources (such as a trainee responsible for the university equipment to help with the multimedia projector, etc) necessary for the research. The researcher was also offered a copying and printing quota.

The contact with the ESP teacher and the Software Engineering teacher was informal. Both were very keen to participate in the research.

After these contacts had been made, the researcher was invited by the ESP teacher to have an informal talk with the students (during the ESP class), to explain the research project and to ask for volunteers.

Because of a strike at the university, the academic year which is from March to December, had to be changed. The period in which the project was carried out – from December to February - is usually the students' vacation and the hottest season in the region with temperatures above forty degrees Celsius.

5.4 Participants

As students' participation is central to the PD project to be carried out, twenty-five Computer Science students who were in the ESP classroom were initially contacted. At the beginning, twelve agreed to participate but only eight continued throughout the whole research period. I decided to use evidence only from participants who provided a full set of data, and so the data initially collected from the four who dropped out was not used.

The eight participants were all males and from different social backgrounds.

Conversations were held with them on an individual basis to fix a time schedule for the initial interviews and the design meetings.

There were different reasons why these eight students agreed to participate:

- “because of the knowledge...to take part in a PhD research” (S1)
- “because it is important to my curriculum [vitae]” (S2)
- “because the project is interesting ...design is what I like” (S3)
- “to improve my course” (S4)
- “to learn English” (S5)
- “because I like to learn” (S6)
- “to improve the ESP class” (S7)
- “because there was a need” (S8)

The Table 5.2 below provides a summary of the eight students’ previous experience with English as foreign language learning and their own assessment of their English proficiency:

- Three students (S2, S6, and S8) attended both state and private regular schools, two students (S1, S3) attended only state regular schools, and three students (S4, S5, S7) attended only private regular schools.
- Five students (S1, S3, S4, S6 and S7) attended private language schools, four of them assess their proficiency positively and one (S7) assesses his proficiency negatively. Three students (S2, S5 and S8) did not attend private language schools, three assess their proficiency negatively, and one of them (S8) assesses his proficiency positively.
- From the eight students, just one failed in the ESP module.

Previous Experience with English Language Learning					
	State Regular School	Private Regular School	Private Language School	Proficiency	Situation at the end of the ESP module
S1	X	—	4 years	“good (...) I speak very well”	Approved
S2	X	X	—	“weak”	Approved
S3	X	—	1 year and a half	“reasonable”	Approved
S4	—	X	6 months	“above average”	Approved
S5	—	X	—	“very low”	Approved
S6	X	X	3 years and a half	“I am able to communicate”	Approved
S7	—	X	3 years	“I was never much good at languages (.) you see (.) I was always very average”	Approved
S8	X	X	—	“I understand some things (.) you know (.) reading and listening”	Failed

Table 5.2: Students’ previous EFL learning experience and ESP module result

The group of students was very varied in the extent of its design knowledge. Some of them reported having already some formal and informal experience in designing and programming. However, all of them showed they were fast learners. To some degree their participation gave them the opportunity to have a closer contact with additional computing-related content of the course. For example, in one of the workshops (Table 5.4, Workshop 5), they were formally introduced to the concept of prototyping by a Computer Science teacher. This also helped them to gain more confidence as Computer Science students.

5.5 Research Methods

As discussed in the previous chapters (Chapter 3, Section, 3.2; Chapter 4, Section 4.2), there are a variety of methods available to obtain students' accounts of their beliefs about language and language learning and teaching. However, as Robson (2002) argues,

“[t]here is no general ‘best method’. The selection of methods should be driven by the kind of research questions you are seeking to answer. This has to be moderated by what is feasible in terms of time and other resources; by your skills and expertise; and possibly, in commissioned research, by the predilections of the sponsor” (p.385).

Considering the research questions posed here, the research methods employed were interviews, recordings of students' participation in the workshops and their entries in an online diary. The table which follows shows the data collection timetable which involved three different stages:

Access negotiation	August/2013
Online diary – pilot	August/2003
Online diary – design	August-December/2003
Sample Selection and Initial Interviews	December/2003
workshops, diaries	January-February/2004
Final Interviews	February/2004

Table 5.3: Data collection timeline

A description of the method used and a discussion of why they were chosen come next.

5.5.1 Recordings of the workshops

As discussed in Chapter 5 (Section 4.3.2), design workshops and prototyping are PD techniques widely used for involving users in design. Here, different from the abstract data usually gathered from interviews, the involvement of students in the design of a Web Portal was thought as a means of gaining more concrete data regarding students' construction of the ESP classroom.

Nine meetings were set out with participants. In the Table 5.4 below, there is an overview of the workshops time, location, duration and aims. The workshops were thought so the group would work together in two different spaces: the meeting room and in the computer lab and the researcher was responsible for the tape recorder used to record participation.

In the planning phase, the researcher decided not to define the aims of each workshop, except in the case of the first and second of them. The following workshops were open to suggestions about what to do and since the Software Engineering teacher was a participant, she could be relied on to help in any further stages that were required.

In the first workshop, students read and signed a specific consent form (Appendix 1). The researcher thought that it was necessary to explain to the participants their specific rights and the possible implications of their participation in this undertaking.

Design Session	Place	Rec. Time.	Aims
1	Meeting Room	01:12:48	Discuss the main aim of the project; Obtain a shared view of the users.
2	Meeting Room	01:33:12	Obtain a shared view of the learning and technological context.
3	Meeting Room	01:02:43	Obtain a shared view of the learning and technological context. Elicit suggestions based on the previous discussion
4	Lab	01:01:06	Elicit suggestions based on the previous discussion Analysis of the content provided by different sites; First prototyping (low-tech)
5	Meeting Room	01:33:22	Lecture: the Different types/application of Prototypes Prototyping
6	Meeting Room	01:24:17	Prototyping
7	Lab	02:06:05	Prototyping
8	Meeting Room	01:33:42	Prototyping
9	Meeting Room	00:54:08	Discussion: the use of the Portal
		Total: 12:30:18	

Table 5.4: Design workshops: time, location, duration and aims

Because of the high temperatures during the period of the data collection and with problems with the air conditioning system which was very noisy, the recordings of some workshops presented a poor quality and some parts were even lost.

5.5.2 Semi-Structured Interviews

Although this is a time-consuming task, the decision to carry out semi-structured interviews on an individual basis was grounded on two reasons. Firstly, the sample was small and so more specific information about each one of the participants could be collected. Secondly, the language used by participants was seen as important in order to portrait their construction of the ESP classroom.

A number of issues were addressed in the design phase of the semi-structured interviews. First of all, before preparing the protocol (Appendix 2), some

consideration was given to the kind of data that was being sought. After this, a number of questions were drawn from the literature (e.g. Hutchinson and Waters, 1987) these were later divided into four areas:

- Personal information (participants' names, educational background, level of language proficiency, reason for choosing the Computer Science course, the importance of English in their course and career);
- The ESP classroom (teacher's approach, material, themes studied, etc);
- Design knowledge (knowledge of web design, skills and knowledge that was thought to be necessary, etc);
- Participation in the project (reasons for taking part, expectations of what would result from their participation and the group work).

The same design procedures were adopted to construct a preliminary semi-structured interview which was carried out with the ESP teacher (Appendix 3). The aim was to compare her views of the classroom events with those of the students; the questions covered the following areas:

- Personal information (training background, previous experience with language teaching, level of language proficiency, etc.);
- The ESP classroom (approaches, material, themes studied, etc);
- Design knowledge (knowledge of web design, skills and knowledge she thought would be necessary, etc);
- Participation in the project (reasons for taking part, expectations of what would result from her participation and group work).

All of the interviews were carried out at the university but at different locations depending on the availability of a suitable venue. In each of them, the participants were informed that the overall objective of the researcher was to design a Web Portal that could be used as an aid to ESP learning, and to understand the participatory nature of design. It was made clear that the Portal would be used by newcomers since the participants were at the end of their academic year. In addition, the participants were asked to read and sign a consent form (Appendix 1) and were told of their right to ask questions regarding this or the project as a whole. This was a part of the necessary ethical procedures which are discussed further in Section 5.7.

In the last week of the project, a protocol was designed for the final interview (Appendix 2). The aims were twofold:

- to clarify issues arising from the initial interview and from the workshops;
- to evaluate the product that was designed, and the individual and group participation.

Finally, the interviews (both initial and final) ranged from fifteen minutes to an hour with a total of nine hours of recordings.

5.5.3 Online Diary

The online diary was expected to be valuable in gaining more data on students' construction of the ESP classroom. The use of online diaries allowed the researcher to have access to the participants' entries at any time, and, more important, enabled her to ask them to make further reflections on specific issues without having to wait for a face-to-face contact. In addition, since the participants are familiar with the technology, the online diary would not be regarded by them as a threat. Finally, what makes it a convenient source of data-gathering is the fact that there is no need to transcribe the entries since they are already in digital form. However, the use of online diaries as a research method was a new undertaking so a pilot of such a methodology was thought as important. This pilot is described next.

Piloting an Online Diary

A ready-made diary that was freely available on the Web was chosen in a pilot scheme for the technology before it was used to collect data for the main study. The purpose of this was to help the researcher investigate issues such as security, access and the facilities available, before deciding on the need of designing a tool that was specifically used for the main study.

A group of four students, who were being trained to be English teachers, was invited to pilot the online diary for four weeks. During the process, some expected and

unexpected outcomes were detected. These could mainly be attributed to the technology itself, and the way the participants used the diaries.

It was expected (and confirmed) that the on-line diary would be easy to access; it was a free tool and could be accessed from different locations. However, since it was a freely available tool, it was heavily used at times and what caused delays when the tool was used to add the entries.

One important feature of the online diary was the fact that it could be accessed at any time, since this would help the researcher to check the participants' entries and interact with them without having to wait for a face-to-face contact. In addition, it would help to maintain the participants' commitment to producing their entries. However, since they had the option to make available one entry per page, the participants did not check the previous entries; as a result, they did not see the researcher's comments on their entries and had to be informed about these via email. This also made it difficult for the researcher to maintain the participants' commitment to producing their entries. Finally, the online diary used in this pilot scheme did not offer the option of backing up the entries. Thus, the researcher had to copy and paste all the entries and transfer them to a separate file so that they could be backed up.

It was also expected that the use of the (online) diary would help in gathering "reflective" information from the participants. This was confirmed, although the participants complained about having to make entries every day about a specific topic. Thus, after some time they started to make entries about different issues as, for instance, those related to their family. This led to another factor: although the participants were aware that they were taking part in a pilot study to investigate the use of online diaries, they could not resist adding personal information. The degree of intimacy displayed in their entries, drew the researcher's attention to the ethical issues involved in using these kinds of data-collecting techniques.

These results led to decision of designing an online diary specific for the study. This diary was designed by the researcher, the Software Engineering teacher and four of the students who, later, would take part in this research.

Using the Online Diary

In the first workshop, the students were given a password to enter the online diary (which was given the name DOPE – Diário Online de Pesquisa). Some guidelines were drawn up regarding what to write in it: suggestions, doubts, etc. Written guidelines were sent out to every one through the diary, and the students were asked to sign a separate consent form (specifically for the use of online diaries).

As can be seen in Table 5.5 below, the number of entries made in the on-line diaries by each participant varied widely, as did the length of the contributions. Braa (1992) commenting on the use of diaries as a PD technique suggested that the use of diaries might depend on factors such as the situation itself, the participants' cognitive styles, and time constraints.

Participant	Date/Hour	No. of Entries	No. of Words	
S1	2004-01-24	01	101	
	2004-01-26	02	114 (104+10)	
	2004-01-27	01	49	
	2004-01-28	01	69	
	2004-01-30	01	43	
	2004-02-02	01	28	
	2004-02-03	03	170 (23+	
	2004-02-06	01	46+101)	
	2004-02-07	01	51	
	2004-02-10	01	63	
	2004-02-11	01	77	
				25
	S2	2004-01-26	02	82 (29+53)
2004-01-27		01	50	
2004-01-28		01	74	
2004-02-02		01	52	
2004-02-03		01	41	
S3	2004-02-03	03	68 (52+13+03)	
S4	2004-02-03	02	113 (93+20)	
	2004-02-10	02	528 (503+25)	
	2004-02-11	02	35 (22+13)	
S5	2004-02-03 17:05:37	01	38	
S6	2004-01-26	01	88	
	2004-01-28	02	238 (139+99)	
	2004-02-06	01	38	
S7	-	-	-	
S8	-	-	-	
			Total: 2,235	

Table 5.5: Number of entries and words in the online diary

One student said that he did not use the diary because he did not like its design. Others stated that they did not like writing. Thus, overall, the use of an online diary was not helpful in collecting data.

5.6 Data Analysis

The first step of the analytical process was to transcribe the data gathered from interviews and workshops. A number of decisions were made in order to carry out this process of transcription effectively. After the first interviews, the tape recordings were sent for transcription to a person with experience in transcription. This person was from another city in order to protect the privacy of the participants. The researcher herself transcribed the recordings of the workshops.

It was decided to use a notation code which would enable a simple and adequate representation of what was actually said. Punctuation marks, characteristic of written texts, were not used since, as Cameron (2001) points out this would impose “on spoken discourse a kind of structure it does not actually have” (p.34).

(X)	Unknown speaker
(?)	Question
(.)	Short pause
(...)	Long pause
(word)	With the recording unclear, this signalise a supposition based on what might have been said based on the context
(..?)	Unclear talk
[]	Comments on the transcription made by the researcher
[...]	A cut made in the transcription to form a connection with the same topic of interest

Table 5.6: Notation Code

The participants' written entries in the online diary were kept in their original form.

Since all the data gathered was in Portuguese, the translation to English posed an additional task. Kvale and Brinkmann (2008) consider transcription *per se* as a kind of translation, but students' accounts used here would pass through a double process of translation: from oral to written form, and then from Portuguese to English. The researcher asked for assistance: an English translator was hired for the service, however, the initial translation approach used proved to be inadequate: because of lexical and grammatical differences, the translated pieces of texts did not communicate well and that would pose difficulties for the reader. Thus, an interpretive approach of the accounts in Portuguese is offered in English in order to enable English readers to have an understandable story. However, the accounts in Portuguese remain so that they can be checked in case of ambiguities.

5.6.1 Starting the analysis

Once the transcriptions were at hand, the process of initial coding was carried out. The data collected from the interviews, used to address Research Question 1 (How do students construct the ESP classroom, that is, ESP teaching and learning and ESP teaching and learning with technology?) was analysed first since it could provide a basis for the more exploratory work that would come next. The data was addressed as follows: the transcriptions of the interviews were examined and sections of the text were located where students express their beliefs about language, language teaching and learning, as well as ESP teaching and learning and the use of technology in this area. The beginning and end of the sections that were analysed were identified by detecting a change of topic. The data gathered from the interviews was the first to be analysed since I expected to identify what elements students' participation in design would add to them.

Research Question 2 (To what extent does students' involvement in the process of designing the computer technology for ESP bring to the light different elements of this 'construction'?) was addressed by examining the transcriptions of the workshops and final interviews, as well as, students' entries in the online diary. Sections of text were located in which students expressed their beliefs about language, language teaching and learning, ESP teaching and learning, and the use of the technology available to support this practice. The beginning and end of the sections that were analysed were identified by detecting a change of topic.

These sections of the text were then treated as the basic elements of the analysis and categorized as described below.

5.6.2 From Codes to Categories

The coding process is a means of dealing with a large amount of unstructured material. According to Robson (2002), "a code is a symbol applied to a section of text to classify or categorize it" (p.477).

In addressing Research Question 1, 98 sections of text from the initial interview transcriptions were identified and coded with an average of 10 sections per student

(the range was from 6 to 25). These 98 sections represent, approximately, 24 per cent of the whole data. Initially the data was broadly coded as *teaching*, *learning* and *technology*. Sections of text within these codes were then categorised. For example, data coded as teaching was categorized as *teacher's practice*, *teaching materials*, *content taught*, and *skills taught*. As the analysis moved on, the categories were refined and, for example, data within the category *skills taught* were separated in two: one which is related to the current ESP practice (Category 02 – ESP teaching and learning are mechanical and repetitive) and one which is related to how the ESP practice should be carried out (Category 09 – Variety in teaching and learning skills, strategies and content should be offered).

According to Saldaña (2012):

“(...) sometimes you may group things together not just because they are exactly alike or very much alike, but because they might also have something in common – even if, paradoxically, that commonality consists of differences”. (p. 6)

Different examples are given to illustrate the range of beliefs within the categories created. One example is the units of texts about the teaching and learning of grammar in which different views emerge but are grouped within the same category (Category 06 – Grammar should be taught in a sequence) since they have something in common: both views are about the value of grammar teaching and learning.

After the long process of deriving the categories - in a bottom- up way from an examination of the data, rather than from a prior analysis based on the literature, naming and renaming the categories in an attempt to form the wording which could best represent the specific categories, 12 categories of beliefs were initially found in the data and were pragmatically grouped as:

1. Beliefs about ESP teaching and learning as experienced in class;
2. Beliefs about how ESP teaching and learning should be carried out;
3. Beliefs about ESP teaching and learning with technology.

Later, a more theoretically informed move led the different categories of beliefs found in the data to be grouped around four themes:

1. Beliefs about language or language learning as accumulation;
2. Beliefs about language and language learning as communication;
3. Beliefs that what is on offer in the ESP classroom is not really satisfactory;
4. Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers.

In addressing Research Question 2, a total of 230 sections were identified – approximately 30 per cent of the entire data: 144 sections from the workshops, 18 from the online diary, and 68 from the final interview. Coding was carried out initially by use of the 12 categories of beliefs which emerged from the analysis of the initial interview. However, during the coding process it was decided to revise to some degree the definitions of some the categories in light of the new data and some new categories were defined in order to categorise data which did not fit into existing categories.

5.6.3 The process of analysis

Ely et al (1991) state that:

“to analyze is to find some way or ways to tease out what we consider to be essential meaning in the raw data; to reduce and reorganize and combine so that readers share the researcher’s findings in the most economical, interesting fashion.” (p.140)

The analytical stages employed to address Research Question 1 were the following:

- The material obtained from the interview was transcribed and the units of the texts were identified;
- The units identified were read several times and put into the categories which evolved from the analysis;
- The categories were shown in Tables which were designed to display the results.

Finally, these categories were examined from theoretical grounds outlined in Chapters II and III. The concepts of quantitative and quantitative conceptions and

beliefs, as proposed by Benson and Lor (1999), were used in order to identify students construction of the ESP classroom.

The analytical moves employed to address Research Question 2 were the following:

- The set of material obtained from the workshops and final interviews were transcribed. With this data at hand, and the written accounts from the online diaries, the units of texts were identified;
- The units identified were read several times and put into the categories identified in the analysis of data carried out in order to address Research Question 1. Some of these categories needed to be reviewed and some new categories emerged;
- Tables with these categories were constructed to display the results.

Finally, these categories were also examined from the theories reviewed in Chapters II, III and IV. The concepts of quantitative and quantitative conceptions and beliefs as defined by Benson and Lor (1999) were used to identify the students' construction of the ESP classroom.

5.7 Ethical and Political Issues

The involvement of users in design is likely to raise both ethical and political issues since it may be a form of exploitation, objectification, manipulation and deception (Muller et al, 1997). Having these issues in mind, in the first contact with the group, the students were informed about the overall objective of the researcher: to design a Web Portal that could be used as an aid to ESP learning. The specific objective, however, to investigate their construction of the ESP classroom, was not made clear because this was thought to hinder their participation.

Also, care was taken to inform the participants that they were taking part in a research project and that the group would spend five weeks designing the prototype of a Portal which would be used as an aid to ESP learning. Being Computer Science students, they readily understood that the time available would not be enough for the implementation of the Portal. Moreover, as they were at the end of their academic

year, they were made aware that they would not *use* the Portal but that their participation would be extremely valuable to decide on the design.

When users and designers work together, the actors have to make explicit their own perspectives. Thus, negotiation is necessary at every stage to find answers to the shared design problems. In addition, it should be borne in mind that the teachers and learners are not isolated, but form part of a wider community which also needs to be consulted to avoid the risk of teachers and learners embarking on a process which will not fit into the community's structure or rules. This relates to what Punch (1994) calls "the micropolitics of personal relations to the culture and resources of research units and universities". To address this issue, the director of the campus was invited to give a talk in one of the workshops about the use of technology in the campus.

Writing about research in general, Punch (1994) lists some of the issues that must be taken into account in establishing a relationship between the researcher and the research subjects. These are related to consent, privacy and confidentiality. In the first place, the subjects have the right to be informed about the research, and to accept or refuse to take part. Secondly, the researcher must safeguard the subjects' privacy and anonymity to avoid any harm or embarrassment. Thirdly, since the researcher and subjects are part of the same context, it is essential to strike up a relationship of partners working collaboratively to solve a particular problem. In our study, this was done by making the students aware that they would not use the Portal which was being designed but that their contribution to the design would be valuable.

Both the host institution and the participants were informed about the research. In the case of the host institution, it is worth noting that it had no code of ethics for research in education at the time when this study was carried out. In the case of the participants, it was necessary to take particular care about issues of privacy and anonymity because the participants belong to a small community and so may be easily identified. So participants were informed that complete confidentiality could not be guaranteed. The same issues of privacy and anonymity arise when dealing with research participants who are collecting data in an online environment, as in the case of the online diary. Mann and Stewart (2000) point out that participants must be fully informed about the risks of keeping personal records in an online environment

and that this issue is explained on the consent form that the students are required to sign.

Ethical issues also arise because the researcher has a dual role as ESP teacher and researcher. For instance, as a teacher, there might be the temptation to be overcritical of the students' participation or of playing a too active role in leading the design process.

Within qualitative data analysis there is always a potential for researcher bias in interpretation, and recognizing this potential researcher' bias is an important step towards research trustworthiness. In order to deal with such an issue, randomly selected parts of the data, analysis and discussion were peer reviewed.

The data gathered from workshops, online diaries and interviews will be safely locked away for a period of five years after it has been analysed for this study and a copy of the thesis will be sent to the Computer Science Department which might benefit from it as a piece of research (irrespective of the findings) since it has a special interest in the users' participation in design.

CHAPTER VI

ANALYSIS OF THE INITIAL INTERVIEW

6.1 Introduction

This chapter presents an analysis of the data collected through semi-structured interviews carried out by the researcher (RE) with students (S1, S2...S8) and with the ESP teacher (TE). The analysis of this data will enable us to begin to address the first research question:

- 1) **How do students construct the ESP classroom, that is, ESP teaching and learning, and ESP teaching and learning with technology?**

The following issues were explored with students in the Initial Interview (II) (the Interview Protocol is given in Appendix 2):

- their learning needs;
- positive/negative aspects of the ESP classroom;
- what can be improved in the ESP classroom and how this can be put into effect;
- what computer resources could be used in the ESP classroom and why they would be useful.

The ESP teacher was also interviewed in order to obtain her views about the classroom. The interview carried out with the ESP teacher explored the following issues (the Interview Protocol is given in Appendix 3):

- the approach used in the ESP classroom;
- positive/negative aspects of the ESP classroom;
- what computer resources could be used in the ESP classroom and why they would be useful.

With the transcriptions at hand, the initial process of selecting the sections of text which would be categorised was carried out. The focus was on identifying what the students said the teacher's practice, the material used, the language skills acquired in the classroom, the learning content, the module, the learners and, finally, the use of technology for ESP learning. These accounts will be referred to in the description of the analysis as the "beliefs" expressed by the students. Some 98 sections of text (beliefs) were chosen – approximately 24 percent of the entire data - with an average of 10 sections per student (ranging from 6 to 25). The categories used to categorise the beliefs were derived in a bottom-up way from an examination of the data, rather than from an a priori analysis using categories derived from the literature. The categories were revised several times as the analysis progressed and changes were found to be necessary, for instance, some categories were combined, others were divided. The vocabulary used for naming the categories of beliefs was also refined in an attempt to employ wording which was best representative of the specific categories. In the end, 12 categories were identified and they were initially divided into three groups for presenting the data:

- Beliefs about ESP teaching and learning as experienced in the class.
- Beliefs about how ESP teaching and learning should be carried out.
- Beliefs about ESP teaching and learning with technology.

In the account of the analysis given in this chapter, each category within each group is illustrated by extracts from the students' conversations, the coded unit being highlighted within each extract. Some surrounding context is also provided, such as the specific question asked by the researcher or further elaboration by the student. The source of the text is indicated by keys, for example, II_p2 means page 2 of the transcription of the Initial Interviews.

This chapter is divided in three sections. I will first examine the students' beliefs about their ESP classroom as a means of determining the way that they construct it. As indicated in Chapter 3, Section 3.3, the analytical framework devised by Benson and Lor (1999) will be taken as the primary point of reference for this analysis in the first instance. Then I will discuss the data analysed. Finally, I will present a summary of the findings.

6.2 Beliefs about the ESP classroom

This section is concerned with ESP practice viewed from the perspective of the students, that is, how they construct the ESP classroom. This is structured in three sub-sections that deal with the three groups of categories of beliefs already identified. Where appropriate the teacher's perspective will be presented in order to provide a context for interpreting the students' beliefs.

6.2.1 Categories of beliefs about ESP teaching and learning as experienced in class

This section will first look at how the teacher describes ESP teaching and learning in this classroom at the time of the Initial Interview before presenting the students' accounts of their experience of the ESP classroom.

The teacher's voice

The teacher presents her practice as based on her own interpretation of the Genre Analysis approach to design the reading activities used in class:

RE: *qual abordagem que você usa (?)*

TE: *olha (.) e (.) eu (.) eu to (.) eu to fazendo uma abordagem de (.) na linha do gênero e na linha do gênero em termos do aluno observar (.) de (.) da estruturação de um texto (.) né (?) você (.) é (.) sempre dizer pra ele (.) olha (.) o (.) todo autor ele sempre faz uma distribuição do (.) do que ele quer passar de informação (.) então (.) normalmente a ideia do parágrafo (.) você tem uma ideia (.) né (?) que você inicia e depois você faz um desenvolvimento e depois você relaciona com o próximo (.) então (.) nesse sentido de pedir pra eles fazerem uma leitura mais (.) de maneira mais geral e depois a gente passa pra uma leitura mais (.) dos detalhes e aí fazendo uma observação com o significado das estruturas linguísticas (.)*

[II_p.4]

RE: *What approach do you adopt?*

TE: *I'm in the line of genre which involves the students observing the way the text is structured. Every author divides up the information he wants to convey. You start out with an idea and then you develop it and after that you link it to the next paragraph. This involves asking them to read it through again in a more general way and then to read it once more in detail, making comments about the meaning of the linguistic structures.*

TE: deixá-los [os alunos] conscientes disso (.) né (?) da teoria do gênero que a gente tem como que o (.) né (?) uma estrutura textual pronta ali que se eles começarem a (.) a fazer uma leitura não só do vocabulário (.)mas de procurar essas informações (.)

[II_p.7]

TE: To make students aware of the theory of genre. There is a textual structure ready there. They start reading not only focused on vocabulary but to look for this information.

Extract 6.01

The teacher defines genre in terms of text structure: how the paragraphs are connected to form a single unit. In addition, she stresses the need for a closer look at how the meaning is conveyed by the structure (“making comments about the meaning of the linguistic structures”).

In the extract below, the teacher also points out that there is a need to carry out a more general reading to identify the topic, and then a closer reading to enable the students to “learn through this kind of reading”:

TE: eu também (.) eu também trabalho a estratégia de leitura (.) eu acho que na hora que eu peço pra ele fazer uma li..(.) uma leitura mais (.) é (.) (?) (.) né (?) você pede um (.) um scanning pra ver do quê que trata o texto (.) depois você vai pra uma leitura mais aprofundada (.) né (?) eu (.) eu acho que (.) eu (.) eu (.) eu acho que eu (.) eu pessoalmente acredito muito nesse tipo de (.) de treinamento (.) mas eu acho que você tem que ter um aprofundamento (.) porque senão você não consegue (.) eu acho que o (.) ensinar pra eles que existe diferentes leituras (.) eu acho que é uma coisa importante (.) porque muitas vezes você dá uma olhadinha (.) e você fala não (.) isso aqui não me interessa (.) mas como a gente quer que eles tenham (.) eles aprendam através dessa leitura (.) eu acho que daí você faz um aprofundamento maior (.)

[II_p.3/4]

TE: I also work with reading strategy. You get them to scan the text to see what it is all about and, after that, you are able to read it in greater depth. I personally really believe in this kind of training. But as we want that they learn through this kind of reading, we need to go deeper.

Extract 6.02

It should be noted that the teacher seems to confuse terms here. 'Scanning' is a reading strategy in which the reader scans the text for specific pieces of information. 'Skimming' is about looking for the main ideas or for general information (as

presented in Chapter 2, section 2.4.1.). Thus, the teacher should have used the term skimming and not scanning to refer to the reading strategy she is describing here.

The teaching of distinctive patterns of technical vocabulary is also a concern for the teacher (Extract 6.03). Though not described in her syllabus as presented in Chapter 5 (Sections 5.2) the teacher is also concerned with the teaching of listening skills in order to help students to take part in conferences (Extract 6.04):

TE: o último texto que nós trabalhamos foi sobre OS (.) operating systems (.) então em (.) qual que é a relação do sistema operacional com os vários tipos de computador (.) né (?) então (.) eles ficam acostumados com mainframe (.) network (.) o quê que (.) o quê que o sistema operacional de um network difere de um sistema de um mainframe (.) então (.) pra eles perceberem que as palavras se repetem (.) são conceitos da área deles (.) entendeu (.) eles precisam entender o conceito pra tá entendendo aquele texto (.) daí a gente explora mais essa abordagem (.) por exemplo (?)

[II_p. 4]

TE: The last text that we worked with was about operating systems. It was about the connection between operating systems and different kinds of computer. They need to get used to mainframe, network. So they notice that the words appear repeatedly. They are concepts in their own area. They must understand the concepts so they can understand that particular text. Then we explore more this approach.

Extract 6.03

TE: eu tô também trabalhando a parte de (.) não de oralidade deles se expressarem (.) mas uma tentativa de (.) de um treinamento de eles entenderem um pouco (.) né (?) então (.) eu tô usando aqueles exercícios de listening (...) mas eu acho que isso é uma coisa importante do aluno (.) ter esse (.) eu gostaria muito de (.) de efetivar essa parte dele pelo menos entender (.) porque eu acho que muito é dito (..) (?) (.) né (.) participar de uma palestra e conseguir (.) eu acho que (.) o (.) e (.) esse também é um outro treinamento que a gente pode fazer (.) então eu tô tentando levar as duas (.) as duas habilidades linguísticas da leitura e da compreensão oral (.)

[II_p.3]

TE: I am also working in an attempt at training them to understand a little. To take part in a lecture and be able to do so. I'm trying to cover both the two linguistic skills reading and oral comprehension.

Extract 6.04

It is clear the teacher attempts to provide students with texts and themes that fit their area of interest and she expects the students to use what they learn in the ESP

classroom in their learning of specific topics (e.g. Computing I). However, she accepts that the texts are out of date (Extract 6.05). To work with Computer Science texts from textbooks is a challenge considering the speed with which developments in the area take place and the timetable according to which texts are selected, collected into a textbook and made available for the teachers. Although the teacher attempts to provide reading practice that is relevant for her students, she recognizes that they do not like to read what is provided (Extract 6.06):

TE: talvez os textos são (.) estão em termos de conhecimento científico (.) os textos são muito (.) ultrapassados (.) mas ele tem uma linha de tópico (.) né (?)
[II_p. 4]

TE: The texts are very out of date in terms of scientific knowledge, but at least they include some sort of topic.

Extract 6.05

TE: pra mim eles não gostam de ler absolutamente nada (.) isso pra mim fica muito claro naquela sala (.)
[II_p.5]

TE: I find they don't want to read anything at all. This stands out very clearly in the classroom.

Extract 6.06

The students' voice

The table below shows five categories of beliefs that were identified in the data related to students' views of the ESP practice. An X in the table indicates that a participant expressed a particular belief within that specific category.

Categories of beliefs about ESP teaching and learning as experienced in the class		S1	S2	S3	S4	S5	S6	S7	S8
		01	Learning English is important as a means of communication in academic and professional contexts	X	X	X	X	X	X
02	ESP teaching and learning are mechanical and repetitive	X	X	X			X		
03	The current provision of ESP is not interesting or useful		X	X				X	X
04	Heterogeneity of student language proficiency is an obstacle to learning	X		X	X				X
05	Learning vocabulary in Computer Science is important	X	X		X	X	X		

Table 6.1: Categories of beliefs about the ESP teaching and learning as experienced in the class

Category 01 - Learning English is important as a means of communication in academic and professional contexts

All the students said that learning English is important as a means of communication in academic and professional contexts – whether it be in written or oral forms. S1, S2, S4, S5, S7 and S8 think that learning English is also important as a means of accessing research, web-sites and course books (Extract 6.07), S2 and S3 believe that learning English will help them when they attend conferences (Extract 6.08), and S1 believes that learning English is also a means of learning programming languages (Extract 6.21 below):

S8: *é (...) o inglês (foi bom?) (.) porque (..) em tantos livros (.) né (?) a partir de um tempo é só em inglês (.) é tudo (...) ah (.) tudo no computador é em inglês também (.) eles (...) sei lá (...) a importância (...)*
[II_p.4]

S8: *So many books. Everything will be in English soon. Everything on the computer is in English too.*

RE: qual você acha que é a importância da língua inglesa no seu curso (?)

[...]

S5: tem muito (...) pesquisas (.) sites que eu quero conhecer (.) coisas novas (.) sempre o idioma é (...) e (.) tipo (.) se não for o idioma deles lá no (.) onde foi feita a pesquisa (.) a outra opção é em inglês (...)

[II_p.2]

RE: What do you think is the importance of English in your course?

S5: There are a lot of research sites that I want to know, new things.

Extract 6.07

RE: o que você precisa aprender aqui (?)

S3: mais parte de (.) compreensão quanto a congressos (.) essas coisas (.) do curso e (...) compreensão (.) assim (.)

[II_p.5]

RE: What do you need to learn here?

S3: To understand conferences. Things related to the course.

Extract 6.08

The beliefs in this category include the students' beliefs both that they need English to meet the academic requirements of their Computer Science course (in terms of access to research, etc), and that they need English to meet the requirements of the professional market. S1, S6 and S7 believe that learning English is important as a means of communication with members of the international Computer Science community. S1 gives an example of how English is used in a professional context - he thinks it is an important way of gaining access to the foreign professional market:

RE: além da (.) da programação (.) você acha que ele teria alguma outra (.) algum outro uso (?) o inglês (?)

S1: se a pessoa quiser (.) ter lá (.) assim o campo dele num outro país assim (.) trabalhar num outro país (.) no mercado estrangeiro (.) vai ter que saber inglês (.) quer ir pra outro país trabalhar tem que saber inglês (.) se comunicar com todo mundo (.) já consegue entrar no mercado assim (.) sem ficar (.) sem começar com um ponto negativo (.) né (?)

[II_p.2/3]

RE: Apart from programming what do you think you could use English for?

S1: If you want to go to another country to work you have to know English to communicate with people.

Extract 6.09

Category 02 - ESP teaching and learning are mechanical and repetitive

The beliefs in this category as exemplified in the following quotations suggest that the ESP practice follows a fixed, simple and undemanding pattern which might be described as mechanical and repetitive.

S1 describes the teaching material as “*more exercises*” and “*more training*” (Extract 6.10), and he further implies that the materials are very simple in their demands on knowledge of English. S2 describes the ESP class as following a fixed pattern consisting of reading texts and answering questions (Extract 6.11). S6 (and S3) describe these texts which are provided for reading as being technical materials that are already familiar to the student (Extract 6.12).

S1: os materiais (.) eles estão voltados (.) assim (.) mais pros alunos que não sabem inglês (.) só que eles não assim (.) não tem tanto assim (.) mais exercícios (.) mais treinamento (.) só que ele não ensina (.)
[II_p.5]

S1: The material is designed for students that don't know English. It doesn't offer much. It's more exercises, more training. It's just that it doesn't teach.

Extract 6.10

S2: a professora dá o texto e daí tem que ler e procurar dentro do texto as respostas das perguntas(.)
[II_p.5/6]

S2: The teacher gives the text and then we have to read and search for the answers of the questions in the text.

Extract 6.11

S6: geralmente ela traz materiais (.) mas traz materiais técnicos só (.) né (.) ó (.) isso funciona assim e assim (.) coisa que a gente já sabe (.) já vem sabendo (.) coisa mais padrão assim (.)

S6: She usually brings along material but she only brings technical material: this works like this or like that. Things we already know. Things that follow a fixed pattern.

[II_p.6]

Extract 6.12

Category 03 - The current provision of ESP is not interesting or useful

Four students (S2, S3, S7 and S8) say explicitly that students are not interested in the class, or, at any rate, are not committed to it. This is illustrated by the comments of S2 and S8:

RE: *o que você não gosta na aula de Inglês (?)*

S2: *falta de interesse (.)*

RE: *de quem (?)*

S2: *dos alunos (.)*

[II_p.3]

S8: *o que falta mais é (.) bastante lá na nossa sala é o empenho (.) empenho da turma (.) né (?) falta (.) o que falta assim (.) tipo (.) a turma se empenhar mais e (.) e (.) e começar a participar da aula de uma maneira melhor (.) né (?)*

[II_p.5]

RE: *What don't you like in the English class?*

S2: *The lack of interest.*

RE: *Whose lack of interest?*

S2: *The students'.*

S8: *What is most lacking is students' commitment. The students must start to take part in the class in a better way.*

Extract 6.13

The lack of interest in the activities proposed by the teacher described by the students in these extracts is corroborated by the teacher's statement that the students do not read what is provided (Extract 6.06).

S2 goes further and argues that ESP is not useful. For the current requirements in terms of reading text he can get by with a dictionary (Extract 6.14), though he recognises that ESP will be more important in the future when attending conferences and courses (Extract 6.15). S2 argues (and S4 and S6 make similar points) that it would be better to be able to interpret the text, to see what the text is “saying” (Extract 6.16):

S2: *o que tá no papel (.) para ler (.) você usa um dicionário (.) dá pra entender (.)*
[II_p.5]

S2: *You can use a dictionary to read what's on paper. It's enough to understand.*

Extract 6.14

RE: *you think that here in the course you would need more English for reading, writing? What for?*

S2: *I don't find it very useful now. It is going to be more important in the second and third year when we take part in conferences and courses.*

S2: *eu a (.) pra (.) pra escrever ou para entender palestras (.) alguma coisa assim que possua inglês que é pra entender(.) mas outra é só entender um texto (.) dá pra usar um dicionário e (..?) mas assim é (.) por enquanto eu não tô vendo muita utilidade (.) vai ser mais importante no segundo e terceiro ano que a gente vai participar de mais congressos e é cursos (.) essas coisas e vai precisar mais (.)*
[II_p.3]

RE: *Do you think you need English in your course more for reading, writing? What for?*

S2: *I don't find it very useful now. It is going to be more important in the second and third year when we take part in conferences and courses.*

Extract 6.15

S2: *é (.) o problema é que (...) eu não sei como (...) não usar (...) ler um texto e interpretar o texto (.) entendeu (?) o que o texto tá dizendo (.) isso (.) é (.) seria uma boa (.)*
[II_p.4]

S2: *The problem is that I don't know how to read a text and interpret the text. Understand what the text is saying would be good.*

Extract 6.16

Category 04 - Heterogeneity of student language proficiency is an obstacle for learning

Some students who have a positive assessment of their own language proficiency (S1, S3, S4 and S8) see themselves as “out of context” in the class because of the differences in the levels of proficiency of the students. S1 argues that the differences in levels of proficiency of the students is an obstacle to his learning because *he* does not need to learn what is being taught in the class – namely the basics of language – though he recognizes that other students (less proficient than he) do need this material (Extract 6.17). S4 argues that the difference in levels of proficiency of the students is an obstacle to his learning because he always has to wait for the other students to catch up (Extract 6.18). S8 argues that the difference in levels of proficiency of the students leads to a less demanding learning environment than

might otherwise have been the case, and so is an obstacle to his learning (Extract 6.19).

RE: *tem alguma coisa que TE ensina aqui que você não precisa (?)*

SI: *que eu não precise (?)*

RE: *é (.)*

SI: *que eu não precise seria a base (.) né (?) porque eu já tenho o conhecimento (.) assim essa parte mais básica (.) não (.) poderia (.) mas tem muita gente que precisa (.) né (?)*

[II_p.7]

RE: *Is there anything that the teacher is teaching that you don't need?*

SI: *I don't need the basics because I already have a knowledge of this more basic stuff. But there are a lot of people who need it.*

Extract 6.17

S4: *(...) acho que vo (.) acho que o (.) é que eu (.) também (.) não sei (.) é (.) o jeito que ela ta fazendo (.) as aulas assim (.) é (.) ela ta (.) deixando os alunos perguntarem (.) e (.) tipo (.) que a sala ta meio dividida (.) né (?) alguns sabem e alguns não sabem (.) daí fica (.) a gente (.) parece que ta esperando os outros (.) né (?) entendeu (?) então (...) mas dá (.) dá pra entender sim (.)*

[II_p.3]

S4: *The class is split up. Some of the students know some of them don't, and then it seems that we have to wait for the others. But it is ok. I can understand it.*

Extract 6.18

RE: *aham (.) me diz uma coisa (.) tem alguma coisa que você precisa e que a professora não tá ensinando(?) alguma coisa que você acha que tá faltando(?)*

SI0: *não(.) não (.) não(.) é que(.) pra(.) por mim(.) tipo(.) acho que ela [a professora] poderia pegar um pouco mais pesado pra(.) pra eu me empenhar um pouco mais e(.) é(.) pra mim seria mais isso(.) né (?) mas aí envolve aquele negócio de (.) da turma (.) um (.) dois (.) três da turma pode ta lá é (.) super empenhado (.) ta bem anos luz na frente (.) mas aí sempre tem a galera que ta bem atrás(.)*

[II_p.4]

RE: *Is there anything that you need and that your teacher isn't teaching you? Is there anything that you think is missing?*

S8: *I think that she could stretch us a bit more so that I could get a bit more interested and but then it involves this issue of the group: one two three of the group can be there really involved, light years ahead, but there is always the bunch that is far behind.*

Extract 6.19

These three examples show the ways in which these students experience the heterogeneity of student language proficiency as an obstacle to their own learning –

through repeating material they already know, through slowing down the class so that others can catch up and by leading to a less demanding learning environment.

Category 05. Learning vocabulary in Computer Science is important

Five students (S1, S2, S4, S5, and S6) suggest that learning vocabulary in Computer Science is important to some degree. S2, S5 and S6 argue that knowing the meaning of words and prefixes makes reading easier (Extract 6.20). S2, S5 and S6 suggest that the teacher draws their attention to words within the texts. This would seem to refer to the teaching of a specific reading strategy – looking at keywords, cognates, prefixes, suffixes, etc. S1 argues that paying attention to the meaning of specific words helps the students to understand features of programming languages (Extract 6.21).

RE: *tem alguma coisa que a TE ta ensinando pra você (.) que você acha que não precisa daquilo (?) tudo o que ela ta ensinando ali de alguma forma ta sendo útil pra você (?)*

S2: *é (.) ela ta (.) o que eu to (.) (o que eu percebi) (é só que a (.) a professora lê) um texto e interpretar (.) saber interpretar bem o texto (.) (..?) qual é o sentido das palavras (.) prefixo (.) assim (.) facilita (.) né (?)*

[II_p.7]

RE: *Is there anything that the teacher is teaching you think you don't really need? Is everything she is teaching useful for you?*

S2: *Yes. To know how to interpret the text well. What the meaning of a word is, prefixes. This makes things easier.*

Extract 6.20

S1: *digamos assim (.) se o aluno (.) ele pega um (.) pra ele entender melhor o quê que cada linguagem [de programação] diz (.) por exemplo (.) o aluno não conhece nada (.) ele pega um if (.) um while (.) assim no código (.) ele sabe que lá faz tal coisa (.) mas não sabe o quê que significa (.) (...) mas se você não tem conhecimento (.) assim (.) noção destas palavras (.) ele não vai entender (.)*

RE: *essas (.) essas palavras (.) elas aparecem como na programação (?)*

S1: *é (.) ela ajuda (.) ajuda bastante na programação (.)*

[II_p.2/3]

S1: *If the student understands better what each [computing] language says. He takes an if, a while in the code and he knows that it does something. It helps a lot in programming.*

Extract 6.21

6.2.2 Categories of beliefs about how ESP teaching and learning should be carried out

The students' voice

The students' beliefs about how ESP teaching and learning should be carried out were grouped into four categories:

Categories of beliefs about how ESP teaching and learning should be carried out		S1	S2	S3	S4	S5	S6	S7	S8
06	Grammar should be taught in a sequence	X		X					
07	Texts chosen for reading practice should be relevant to the students' interests	X	X	X	X		X		X
08	Greater stress should be placed on vocabulary				X		X	X	
09	Variety in teaching and learning skills, strategies and content should be offered	X	X	X		X	X	X	X

Table 6.2: Categories of beliefs about how ESP teaching and learning should be carried out

Category 09 - Variety in teaching and learning skills, strategies and content should be offered

Beliefs in Category 09 were found to be commonly expressed and were perhaps the predominant group of beliefs, and indeed as can be seen in Table 6.2 they were expressed by seven of the eight students in the study.

The beliefs in this category indicate that students want different skills, strategies and content in the ESP classroom from those presently in use. These beliefs are expressed by S1, S2, S3, S5, S6, S7 and S8. The students' preference for different teaching and learning skills and strategies is clearly expressed by S3. Although S3 believes that the listening activities offered by the teacher are interesting, he suggests that the ESP learning could also involve materials outside Computer Science (e.g. music). He links different strategies and content to the teaching and learning of different language skills:

RE: *o quê você acha que poderia ser feito pra melhorar a aula de inglês (?)*

S3: *ah (.) ela ter (.) várias formas diferentes de ensinar assim (.) tipo (.) com livro assim (.) tipo com (.) parte de temas que gosta com música (.) algum som (.) alguma coisa assim (.) que (.) esses dias ela trouxe (.) como por exemplo que (.) colocava tipo uma conversa e falando e (.) da parte de software (.) de programas (.) de Windows e Linux (.) daí tinha que (.) tinha uma vez que você tinha que responder o quê que eles estavam falando (.) sobre qual programa (.) programa que estavam falando (.) que sistema (.) que tipo de computador que a pessoa tava usando (.) tipo (.) é uma aula interessante assim (.) é (.) se interessa (.)*

[II_p.5]

RE: *What do you think it could be done to improve the English class?*

S3: *There could be different forms of teaching, with books, with themes you like, with music, sound. Some days ago she brought a listening exercise: people talking about different kinds of software and we had to answer about what they were talking about. This is interesting.*

Extract 6.22

Going beyond the curriculum and the teacher's agenda, S8 expresses the belief that the teacher should be more demanding and make the students communicate orally in class:

S8: *eu acho que poderia ela começar a pegar um pouco mais assim de conversação (.) é (.) textos (.) é (.) traduzir textos (.) mas eu acho que ta bem legal esse negocio que ela ta fazendo de dar o (.) dar a cópia (.) é (.) textos curtos e fáceis de (.) de entender e aquele negocio de trabalhar (.) trabalhar as frases (.)*

[II_p.4]

S10: *I think that she could force speaking (.)*

Extract 6.23

S1, S5, and S7 also want involvement in spoken interaction. S2 wants more opportunities for conversation as a means for a more active participation in learning. He recognizes his difficulties with listening and speaking and sees the opportunity to use these skills through interacting with others by, for instance, discussing topics of interest with colleagues:

RE: então (.) no geral (.) assim (.) o quê que você acha que pode ser feito pra tornar essa aula mais interessante (?)

S2: (?) eu dou a opinião (.) falando e o outro tentando me entender (.) fazer tipo um diálogo (.) assim (.) cada um pega uma parte lá do diálogo e fala e o outro tenta entender e daí responder (.) né (.) é (.) que (.) por exemplo um (.) ah (.) escutar fita assim (.) de (.) entrevistas assim (.) poderia a sendo (?) (.) é (.) e (.) ah um exercício pra (.) (fazer redação (?) é (.) exercício pra compor um texto (.) essas coisas (.) pra treinar a escrita também (.) assim (...)

[II_p.6]

RE: What do you think could be done to make the class more interesting?

S2: I could express my opinion and the other person could try to understand me. So it would be a kind of dialogue.

Extract 6.24

Category 06 - Grammar should be taught in a sequence

Comments which related to the importance of teaching grammatical detail, and in particular the sequencing of this teaching are put together in this category. There are a range of differences of emphasis between the statements in this category, which are illustrated in the extracts given, but they all stress the importance of teaching grammar.

When asked about the teaching material, S1 (who had the specific topic of phrasal verbs in mind) argues that language structure should be taught and learned in a more analytical and sequential way (Extract 6. 22). This extract suggests the belief that the approach used by the ESP teacher is “loose” and unstructured.

SI: mais a parte assim de mostrar a construção (.) assim pra ele [o aluno] ir pegando as sequencias (.) a base(.)

RE: ta (.)

SI: não tão solto assim (.) mais (...) esquematizado assim (.) como se fosse uma aula de língua por exemplo (.) que nem a gente tem aqui de português (.) mais (...) então (...) essa parte (.) essa parte (.) essa parte (.) essa parte(.)

[II_p.6]

SI: To show the constructions so the learner learns the sequences. The basics.

RE: Ok

SI: Not so loose. More schematized as if it were a language class: this part, this part, this part, this part.

Extract 6.25

The view expressed above by S1 that the ESP teacher uses an approach which is loose and unstructured, and that the grammatical constructions are not presented in a structured sequential manner is supported by the comment of S6, shown below, who argues that there are a lot of grammatical details to be learned (in learning English) but that these details are not being presented in the ESP course he is studying (which he refers to as 'the computer course').

RE: tem alguma coisa que você precisa aprender e que a professora não ta ensinando (?)

S6: tem muito detalhe gramatical (.) mas eu acho que não vem ao caso no curso de computação (.)

[II_p.5]

RE: Is there anything that you need to learn and the teacher is not teaching you?

S6: there are a lot of grammatical details but I think this is not the case in the computer course.

Extract 6.26

Category 07 - Texts chosen for reading practice should be relevant to the students' interests

When asked about what kinds of text they would actually like to focus on in the ESP classroom, S1 argues that the material needs to be more technical (Extract 6.27), whilst S3 (together with S2 and S6) are particularly concerned about new developments in computing (Extract 6.28), and S10 (together with S1 and S4) want to be taught content relevant to their Computer Science course such as the language needed to understand the structures of programming language (Extract 6.29).

S1:[o material] podia ser mais técnico que era melhor até (.) mas assim digamos tem (.) até podia dizer que não (?) do inglês que (..) que o que vem é mais assim voltado pros que não sabem (.) que é pra ensinar (.) né (?) mas como o inglês é aqui é voltado pro inglês técnico (.) daí (.) era seria melhor que tivesse um material mais técnico na área (.)

[II_p.4/5]

S1:The material could be more technical. It would be better to have more technical literature in the field.

Extract 6.27

RE: *que tipo de texto você gostaria de ler (?)*

S3: *não sei (.) coisa interessante (...) relacionado a (.) a atualidade em informática (.)que ta acontecendo atualmente (.)*

[II_p.3]

RE: *What kind of text would you like to read?*

S3: *I don't know. Something interesting related to what is new in technology, what is happening now.*

Extract 6.28

RE: *uhum (...) tem alguma coisa nele [no material] que você mudaria (.) melhoraria (?)*

S10: *a (...) nele (...) eu acho que (.) eu (.) o quê que eu acrescentaria (.) um pouco mais lá são (.) são textos que a gente vai (.) é (.) é (.) tipo (.) textos que a gente vai utilizar (.) ou coisas que a gente vai precisar (.) tipo (.) é (.) o Pascal (.) tem (.) tem o help do Pascal que é uma coisa que a gente precisaria saber (.) todos aqueles comandos (...)*

[II_p.6]

RE: *Is there anything in the material that you would like to change or improve?*

S10: *I would add texts that we are going to use or things that we're going to need like Pascal. The help of Pascal is something that we need to know. All those commands.*

Extract 6.29

Category 08 - Greater stress should be placed on vocabulary

Comments which related to the importance of teaching vocabulary are put together in this category. There are a range of differences of emphasis between the statements in this this category, which are illustrated in the extracts given, but they all stress the importance of teaching vocabulary.

The teaching of technical vocabulary is a very important part of the teacher's practice (Extract 6.03), and as it can be seen in Category 05 (Learning vocabulary is important), students generally believe that learning vocabulary is an important element of existing ESP practice. The beliefs in the present category suggest that there should be an even greater stress on vocabulary, though there is not a consensus among students as to what that vocabulary should be. S6 thinks of learning technical terms as a means of dealing with future requirements (Extract 6.30), but S4 thinks that learning technical vocabulary is not a learning need since he is in contact with this every day (Extract 6.31).

RE: o quê que você acha que é mais importante você aprender aqui com sua professora (?)

S6: (..?) ah (.) imagino que (.) dar uma aprofundada nos termos técnicos (.) né (?) que eu acho (.) não sei se ela (.) ah acho que ela tá de (..?) uma pesquisada nos termos (.) ou a gente pode negociar com ela ainda (.) tentava discutir um dia quais seriam os termos mais (.) que a gente podia (.) podia (.) pesquisar (.) né (.) acho que a dificuldade to povo mais em vocabulário mesmo (.) porque é o que a gente mais vai precisar né (?) de compreensão (...) o povo até tem um pouco de compreensão (de texto) (.)

[II_p.4]

RE: What do you think is the most important thing you are learning here with your teacher?

S6: Technical terms in greater depth. I think that the students' difficulty is with vocabulary. We could negotiate with the teacher what the terms we could research about. It is what we are going to need most.

Extract 6.30

RE: qual é sua maior dificuldade com o inglês (?)

S4: o vocabulário (.) palavras soltas que você não sabe o significado (.) substantivos mesmo (.) palavras soltas assim (...)

RE: você fala de vocabulário técnico ou geral (?)

S4: o geral (...) o [vocabulário] técnico (.) por exemplo (.) a gente tá vendo todo dia e tal (.) a gente já vai atrás pra saber o quê que é (.)

[II_p.4]

TE: What is your main difficulty with English?

S4: With vocabulary. Isolated words you don't know the meaning. Nouns (...)

RE: do you mean technical or general vocabulary?

S4: The general. The technical vocabulary, you come across it every day. You search for it to learn what it means.

Extract 6.31

6.2.3 Categories of beliefs about ESP teaching and learning with technology

Before looking at the students' beliefs about ESP teaching and learning with technology, the teacher's voice is examined.

The teacher's voice

When asked about how technology could be used in the ESP classroom, the teacher made some suggestions. First of all, she suggests that using an electronic dictionary would be valuable for teaching pronunciation (Extract 6.32). Another suggestion given by the teacher is that reading activities could be designed for individual learners with the main aim of assessing students' difficulties (Extract 6.33). Finally,

the teacher suggests the use of the Internet for searching texts and analyzing them from the perspective of genre, but she expresses the belief that this would only be suitable for students with a good command of English (Extract 6.34).

TE: *uma das coisas que eu tô querendo (.) é (.) até eu precisava ver o quê que nós (temos por lá) [no laboratório de informática] era explorar um pouco o (.) o dicionário em CD (.) né (?) eu queria (.) eu queria (.) quero trabalhar com eles dicionário (.) né (?) como utilizar o dicionário (.) e o dicionário em CD pra ver a questão de pronúncia (.) né (?) eu acho que na dúvida você pode consultar um dicionário e tem a pronúncia (.) e você tá atenta como se pronuncia (.) e fazer um treinamento deles pra interpretar o som e essa coisa toda (.) espero conseguir fazer isso (.) né (?)*

[II_p.8]

TE: *To explore the CD dictionary a little bit. I want to use the dictionary with them and the dictionary on CD to look at the issue of pronunciation. I think that when you have a query you can consult a dictionary and there is the pronunciation. You pay attention to what the pronunciation is. To train them to interpret sounds.*

Extract 6.32

RE: *tem mais alguma coisa (..?) que você acharia interessante (?)*

TE: *é (.) eu acho que seria interessante aí (.) acho que seria uma coisa até (.) até mais sofisticada (.) que precisaria que (.) que eu gostaria de tentar (desenvolver) mas aí eu precisaria da ajuda de outras pessoas (.) era começar com (.) com atividades seqüenciais (.) né (?) pra bem individual (.) de o aluno ler um texto (.) tentar responder (.) e na tentativa dele responder ou selecionar a resposta (.) a (.) a gente (.) né (?) ele leria uma parte (.) teria uma resposta (.) dependendo da resposta que der (.) que ele desse (.) aquilo mostrasse que ele tá com dificuldade nisso (.)*

[II_p.8]

RE: *Is there anything else that you think is useful?*

TE: *I think it would be something even more sophisticated but I would like to try to (develop) sequential activities. Individual ones: the learners read a text, try to answer and, depending on the answer they give, that would show their difficulties.*

Extract 6.33

TE: a localização de textos na Internet pra eles lerem (.) essa coisa toda (.) sabe (?) aí já precisaria que eles tivessem um bom conhecimento (.) né (?) por exemplo (.) poderia pensar num exercício sofisticado (.) vamos pegar três textos (.) escrever no computador (.) e vamos comparar pra ver que tipo de linguagem que eles usaram (.) que o autor usou (.) o quê que tem em comum (.) o quê que tem diferente (.) mas isso ele precisaria ter uma (...) boa bagagem de língua inglesa pra você propor um tipo de atividade desse (.) né (?)
[II_p.9]

TE: To locate texts on the Internet so they can read these things. It would be necessary for them to have a good knowledge, for example, we could think of a sophisticated exercise. Let's take three texts and let's compare them to see what kind of language they used. What the author used. What they have in common. What is different. But that would require students to have a good stock of English.

Extract 6.34

The students' voice

Students expressed a range of beliefs about how ESP teaching and learning should be supported by technology:

	Categories of beliefs about ESP teaching and learning with technology	S1	S2	S3	S4	S5	S6	S7	S8
10	Computer resources are valuable for learning technical vocabulary	X			X			X	X
11	Computers offer increased options for accessibility and communication	X	X		X		X		
12	Computer technology allows students more autonomy	X			X				

Table 6.3: Categories of beliefs about ESP teaching and learning with technology

Category 10 - Computer resources are valuable for learning technical vocabulary

A belief expressed by S1, S4, S7 and S8 is that computer technology is valuable for learning vocabulary. S7 says that computers can be used to store vocabulary (Extract 6.35). S4 (and S1 and S8) point to the role technology could play in learning technical vocabulary (Extract 6.36).

S7: *é (.) no computador ter um local pra (.) pra você armazenar as tuas palavras (.) e tal (.) se você tem pelo menos um vocabulário, um vocabulário (.) (...?) que tem um vocabulário já vai (...?) bastante no vocabulário (...)*

[II_p.9]

S7: *To have a space in the computer so you can store your words.*

Extract 6.35

RE: *que ferramentas ou recursos a gente tem disponível para ajudar a aprender inglês (?)*

S4: *não sei (.) mas deve ter (...) sites (.) eu acho que explicam (.) por exemplo (.) os termos da língua (...) de computação (.) por exemplo (.) e dá explicação sobre o que significa aquele termo (.) só que explica em inglês (.)*

[II_p.9]

RE: *What kinds of tools or resources are available to the students for learning English?*

S4: *I don't know but there must be sites that explain language terms of computing and they give explanations about the meaning of a particular term but in English.*

Extract 6.36

It was possible to see earlier that the students believed that both technical and non-technical, general vocabulary should be taught (*Category 08 - Greater stress should be placed on vocabulary*), and here, when questioned about the use of computers as a means of improving their learning, students indicate their belief that computers could help them to learn technical vocabulary.

Category11 - Computers offer increased options for accessibility and communication

Beliefs in this category are expressed by S1, S2, S4 and S6. The ideas of accessibility and communication are intertwined, as is shown in S6's words when asked about learning English with computers:

RE: por que você acha que é diferente estudar inglês no computador (?) o que tem de diferente (?) o que tem de melhor (?)

S6: boa pergunta (.) mas eu acho que o computador (.) ele te dá umas opções de acessibilidade fantásticas assim (.) pode (.) se você tiver procurando (..) se você tá precisando (..) pela Internet (.) precisa falar com (...) precisa mandar material pra alguém (.) você manda pela Internet (.) (..) muito maior (.) né (?) então você tem uma capacidade de comunicação com as pessoas (.) um a (.) um acesso a muito mais informação do que você teria pesquisando numa biblioteca (.) passando a tarde inteira ali dentro (.)

[II_p.7]

RE: Why do you think it would be different to study English in the computer? What is different about it? In what way is it better?

S6: It gives you fantastic accessibility options. You need to talk to someone, you need to send material to someone, you send via the Internet. The possibility of communicating with people. Access to much more information than if you were researching in a library.

Extract 6.37

Other students emphasize these aspects of accessibility and communication separately. S1 and S4 believe that computers can give them access to the technical content they need to learn.

S2 argues that the use of multimedia would help them to understand the lecturers in conferences which would meet one of the needs clearly expressed by S3 described above (Extract 6.08):

RE: uhum (.) tá. que tipo de recurso você acha que seria interessante usar na aula de inglês (?) uma ferramenta (...) o que você acha que seria interessante (?)

S2: ah (.) não sei (...) a gente só usa mesmo o som (.) eu acho legal (.) é quem sabe usar multimídia pra (.) com apresentação de (.) de slides (.) assim em inglês (.) e (.) saber o quê que tá escrito (.) tentar entender (.) que fosse escrito (.) e junto com ele tem o som (...)

RE: uhum (.) e por que que você acha que isso poderia ser usado na aula de inglês (?) (21:51)

S2: ah (.) eu acho (.) se (.) numa palestra (.) num congresso (.) o cara fala em inglês (.) aí se tem a apresentação em slides toda vez que você olha lá (.) você (.) pelo menos lá (.) você entende do quê que ele tá falando (.) né (.) você tem uma idéia do quê que ele tá falando (.) porque o palestrante tá falando (...)

[II_p.9]

RE: What kind of resource do you think would be interesting to use in the ESP class? What do you think would be interesting?

S2: Maybe to use multimedia to slides presentation in English. To know what is written, try to understand what was written and together with it the sound (...)

RE: Why do you think that could be used in the English class?

S2: If the guy speaks in English in a lecture, in a congress. If there is a slide presentation, whenever you look at it, you have an idea of what he is talking about.

Extract 6.38**Category 12 - Computer technology allows students more autonomy**

This belief that computer technology allows students more autonomy is expressed by S1 and S4. Although S1 mentions above (Extract 6.38) that students might not take part in class as expected were the current practice transferred to a computer-based one, he recognizes that computers might give them the opportunity for independent studies (Extract 6.39). However, S1 recognizes that a different practice needs to be offered in order to gain from the use of computers as an aid for ESP learning (Extract 6.40).

RE: tá(.) uhum (.) você acha que é interessante esse tipo de material(?) [baseado no computador] que é assim(.) eficaz(?)

SI: não sei se funciona tão bem quanto os(.) tipo a(.) a(.) digamos assim(.) ele é mais a parte (forte?) que (.) digamos assim (.) uma aula (...?)(.) por causa que é só o aluno ali(.) não tem(.) não precisa esperar os outros(.) (?)

RE: cada um no seu ritmo(...)

SI: é(.) (...?) cada faz seu ritmo(.) se o cara é mais avançado não precisa esperar alguém(.) se o cara é mais atrasado(.) ele não é forçado a (...?) porque os outros são melhores(.) ele faz o seu ritmo e ele(...)
[II_p.15]

RE: Do you think this kind of computer-based material is interesting? Effective?

SI: It's just the student there. He doesn't have to wait for the others.

RE: Each person has his own rhythm.

SI: Yes. If the guy is more advanced he doesn't have to wait for someone. If the guy is behind he isn't forced to. Because the others are better he has his own rhythm.

Extract 6.39

SI: bem se tivesse bastante da parte técnica assim(.) se fosse bem voltado para a parte técnica(.) o computador seria bom.

RE: computador(?)

SI: e se tivesse(.) se fosse bem voltado para a parte técnica(.) mas no estilo que tá agora não(.) não(.) não vai mudar muito.

RE: não vai mudar.. com o uso do computador(?)

SI: o uso do computador não vai mudar muito a aula(.) ele vai a(.) até atrapalhar(.) porque daí o povo vai dispersar (.)

RE: aham.

SI: não vai tá voltado mais pra parte técnica(.) vai tá(...)

RE: me dá um exemplo (.)

SI: ela começa (.) um conteúdo aí e (...) computador (...)

RE: me dá um exemplo de conteúdo (.)

SI: um artigo técnico (.) um assunto qualquer (.) voltado para a computação (.)

[II_p12]

SI: If we had more of the technical side the computer would be fine, but in the style that it is now it's not going to change much.

RE: Isn't it going to change with the use of the computer?

SI: The use of the computer isn't going to change the lesson much. It could even wreck it because it means the people will split up.

RE: Give me an example of what you mean by content.

SI: Technical papers. Any topic related to computing.

Extract 6.40

S1 also sees limitations to this use of software-based activities in which the students work alone, at their own pace, describing it as “boring” and “limiting” in that these activities do not allow learners to go beyond the existing content:

RE: você acha que seria interessante pro aluno [...] se o aluno se sentiria motivado mesmo pra fazer(.) você entender(.) sentar lá(.) ele(.) o computador(.) só(.) e como você falou agora(.) cada um no seu ritmo(.) né (?)

SI: é (.) fica(.) fica meio(.) meio chato(.)você já tem(.) a(.) a maioria das escolas de informática hoje não trabalha mais com professor(.) o professor tira a sua dúvida na hora(.) assim(.) vai lá(.) só(.) (o professor vai(.) tá(.) é isso aqui(?)) daí a(.) é o programa que faz(.) é o programa que tem ensinar (?)

[II_15/16]

RE: Do you think students would feel motivated if they sat there alone with the computer?

SI: It is boring. Most of the computing schools today don't work anymore with teachers. The teacher just helps you with your queries at that moment. It's the program which has to teach.

Extract 6.41

RE: você gostaria de participar de atividades assim(?) com computador (?) fazer esse tipo de (...)

SI: (...) e ter aula também (?)

RE: é (.)

SI: assim(.) de mexer com computador (?)

RE: uhum (.) desse jeito (.) nesse estilo (?)

SI: eu não sei (.) eu não (.) (?) limita muito (.) o computador (.) ficar só naquilo lá (.) se ele quiser ir fora ele vai ter que ir por conta própria e não vai ter ninguém pra ajudar ele (.) aí digamos que tenha um professor lá (.) se eu não entendi (.) tem aquela parte lá (.) se ele quer saber um pouco mais (..?)(.) ele vai falar com o professor (.) (se não é só o computador que ele tem?)(.)

RE: é (.)

SI: pra primeiras assim(.) pra (.) assim (.) séries iniciais assim (.) não (?) séries iniciais assim (.) que não tem muito que (.) aí é bom (.) mas de qualquer jeito usando o computador vai ter que ter o professor (.) se você tem uma dúvida de computador não (.) não vai poder ter (.) poder (.) ah (.) como é que faz tal coisa (.) não vai poder (.) tem que ter o professor (.)

[II_p.16]

RE: Would you like to take part in these kinds of activities with the computer?

SI: I don't know. It's too restrictive. If he wants to go further he has to work on his own and he has nobody to help him. If he wants to know more, he talks to the teacher. Otherwise he just has the computer.

RE: Yeah.

SI: But anyway using the computer the teacher is necessary. There must be a teacher.

Extract 6.42

On the other hand, when talking about the Internet, S1 stresses the importance of having a more autonomous role since he can then explore content and initiate the interaction:

RE: como que o computador podia tornar a aula (.) a aula de inglês diferente (?) como ele podia ser útil na aula de inglês (?) né (?) (...)

SI: ele [o aluno] pode procurar na Internet algum lugar assim que ele (.) fale alguma coisa sobre aquele assunto (.) pra ele próprio entender e pegar mais conhecimento (pegar conhecimento da área)(.) aí ele pode (...) ele pode pesquisar (.) não somente (receber) (.) ele pode pesquisar (.) ele pode (.) ele pode (puxar) a interação (.)

[II_p12/13]

RE: How could computers make the English lesson different?

SI: The student can search on the Internet. He can understand and get more knowledge by himself. He can investigate and interact.

Extract 6.43

As Extract 6.39 above also suggests, S1 believes that computer-based material can be a means of pursuing his own learning needs in a heterogeneous group. S4 also argues that students with more experience can go beyond what is on offer in the classroom:

S4: algum texto em inglês sobre tecnologia mesmo e os exercícios em cima (..?) poder dar aula lá (...) colocar no site (.) às vezes até colocar links pra (.) por exemplo (.) as pessoas que sejam mais experientes (.) por exemplo (.) as pessoas que sabem (..?) colocar um link pra essas coisas assim (.)
[II_p.7]

S4: Some texts in English about technology and exercises about it. Put them on the site and sometimes even add links to them. For people who are more experienced, put a link for such things.

Extract 6.44

The students see the use of the computer technology available as a means of going beyond the content offered, on an individual basis, initiating interaction when needed, and learning by themselves. On the other hand, there is some evidence that the negative side of autonomy is acknowledged when words such as “*limiting*” and “*boring*” are used to describe independent work with computers.

6.3 Discussion

The aim of this chapter is to begin to address the first research question posed in this thesis:

- 1. How do students construct the ESP classroom, that is, ESP teaching and learning and ESP teaching and learning with technology?**

The students' construction of the ESP classroom was accessed by means of an investigation of students' conceptions of and beliefs about, ESP teaching and learning as they emerged in the Initial Interview. The term "construction" is used here to refer to the group of beliefs identified as being held by students in this group.

6.3.1 The construction of the ESP classroom

In this chapter, twelve categories of beliefs about the ESP classroom were found and were initially grouped as shown below:

<p>Group 1: Beliefs about ESP teaching and learning as experienced in class.</p>	<p>Category 01 - Learning English is important as a means of communication in academic and professional contexts. Category 02 - ESP teaching and learning are mechanical and repetitive. Category 03 - The current ESP provision is not interesting or useful. Category 04 - Heterogeneity of students' language proficiency is an obstacle for learning. Category 05 - Learning vocabulary in Computer Science is important.</p>
<p>Group 2: Beliefs about how ESP teaching and learning should be carried out;</p>	<p>Category 06 - Grammar should be taught in a sequence. Category 07 - Texts chosen for reading practice should be relevant to the students' interests. Category 08 - Greater stress should be placed on vocabulary. Category 09 - Variety in teaching and learning skills, strategies and content should be offered.</p>
<p>Group 3: Beliefs about ESP teaching and learning with technology.</p>	<p>Category 10 - Computer resources are valuable for learning technical vocabulary. Category 11 - Computers offer increased options for accessibility and communication. Category 12 - Computer technology allows students more autonomy.</p>

Table 6.4: Summary of the findings from the Initial Interview

This initial grouping arose mainly from the structuring of the interview questions and a more principled grouping is presented in what follows.

6.3.2 Making sense of the construction of the ESP classroom

The students' construction of the ESP classroom which emerged from the initial interviews is illustrated in Figure 6.1 below which summarises the students'

construction of the ESP classroom, indicating the four groups of categories and the individual categories of beliefs within those groups.

The analytical framework developed by Benson and Lor (1999) based on the distinction between qualitative and quantitative conceptions of and beliefs about language and language learning is applied here as a means of understanding the data found. As discussed in Chapter 3 (Section 3.3), *Conceptions* of learning are conceived of as “what the learner thinks the objects and the processes of learning are”. On the other hand, *beliefs* about learning are conceived of as “what the learner holds to be true about these objects and processes”. Beliefs can be constrained or conditioned by qualitative or quantitative conceptions. Language can be seen qualitatively as “an environment to which the learner needs to be responsive in order to learn” (p.467), and language learning as a process of absorbing it in natural context of use. Language can be seen quantitatively as a “collection of things” (grammatical concepts, word patterns, etc.), and language learning as a process of memorizing its component parts by collecting, absorbing and assimilating the language.

Looking at the categories of beliefs found in the data within the framework of this qualitative and quantitative distinction, it became clear that there were a group of beliefs concerned with accumulation and another with communication. The remaining categories, however, did not seem to relate to either accumulation or communication, or to other aspects of the qualitative and quantitative conceptions. Actually, they fell into two other clearly distinct areas – those expressing general disquiet with the present context, and those dealing with autonomy.

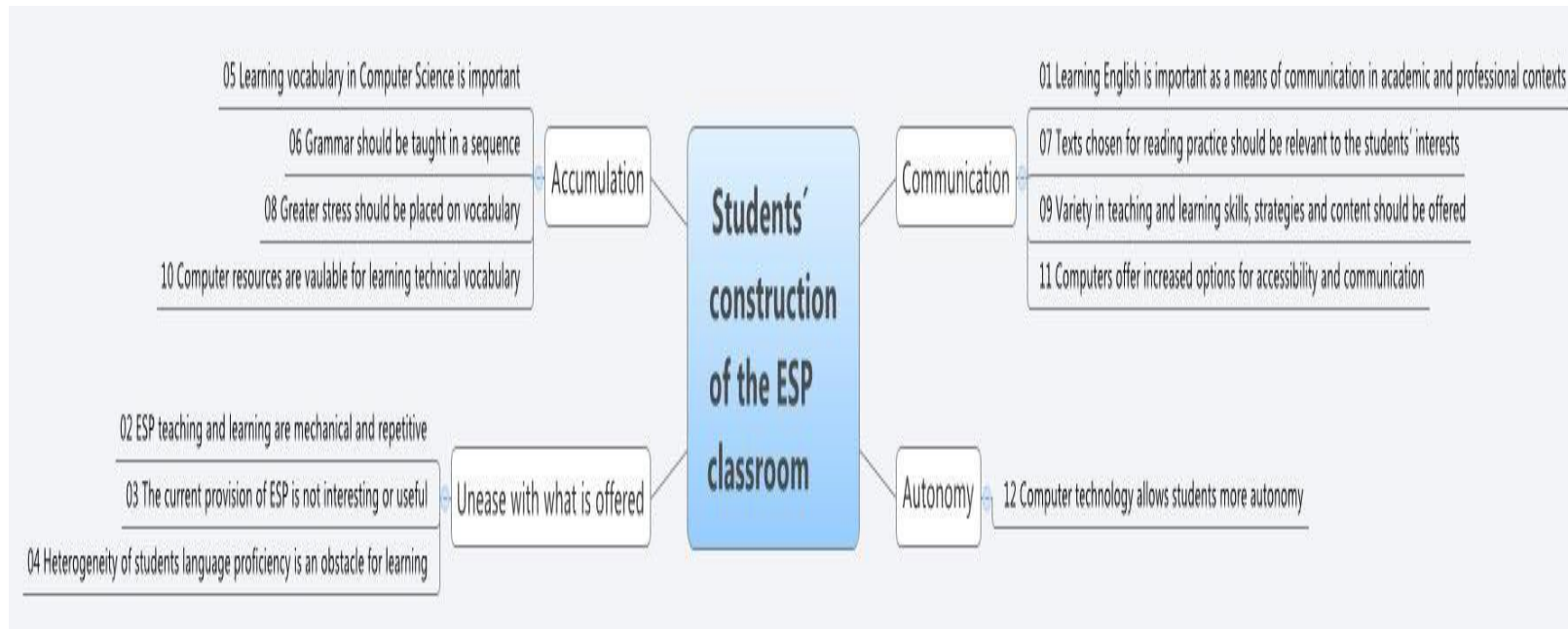


Figure 6.1: Students' construction of the ESP classroom

Group 1: Beliefs about language and language learning as accumulation.

As shown in Figure 6.1 above, it is possible to identify a group of categories of beliefs that involve the idea of accumulation (one of the central themes of quantitative conceptions of language and language learning). The beliefs expressed in Category 05 (*Category 05 - Learning vocabulary in Computer Science is important*) are about the students' view that the more they learn vocabulary, the more they know the language and, thus, learning vocabulary is an important aspect of language learning. Some students want to learn vocabulary as a means of carrying out specific reading tasks set by the teacher, and others want to learn vocabulary as a means of gaining access to their area of interest. The beliefs in Category 06 (*Category 06 - Grammar should be taught in a sequence*) are related to the idea that grammar should be learnt in a sequence in order to facilitate learning. The beliefs in Category 08 (*Category 08 - Greater stress should be placed on vocabulary*) are similar to those in Category 05 in that they are also about vocabulary learning. Although beliefs in Category 05 stress students' view that learning general vocabulary is important, both kinds of vocabulary – technical and non-technical, general – appear in Category 08. The beliefs in Category 10 (*Category 10 - Computer resources are valuable for learning technical vocabulary*) are also about vocabulary learning with computers: these are seen as a means of storing and giving access to vocabulary, however, students emphasize the use of computers for learning technical vocabulary.

This group of beliefs about language and language learning that involve the idea of accumulation can be seen as being conditioned by quantitative conceptions of language and language learning. The idea of accumulation also applies to the beliefs expressed by students about vocabulary learning (Categories 05, 08 and 10) which can also be seen as conditioned by quantitative conceptions - some students regarding accumulating vocabulary as an aim in itself with a focus on acquisition, whereas other students view accumulating vocabulary as a means of improving their access to technical knowledge. Beliefs in Categories 05, 08 and 10 may be seen as functional within the context under investigation since the teaching of vocabulary is stressed by the teacher.

The beliefs that language learning should occur in a sequence (*Category 06- Grammar should be taught in a sequence*) can be seen as conditioned by quantitative conceptions since it is based on a view of language as a collection of things and of language learning as an accumulation of these things. Although there is no evidence that beliefs in Category 06

prevent students from learning, they may be seen as dysfunctional in this context: students believe that grammar should be learned in a sequence and, according to their accounts; this sequence is not provided by the teacher.

Group 2: Beliefs about language and language learning as communication.

The Figure 6.1 above also shows a group of categories of beliefs that involve the idea of communication (one of the central themes of qualitative conceptions of language and language learning). The beliefs in Category 01 (*Category 01 - Learning English is important as a means of communication in academic and professional contexts*) reflect the students' views about the importance of studying English within the area of study they have chosen: Computer Science. These students believe that they need English to meet immediate academic needs by having access to research sites, course books and documentation, and to meet professional needs by learning to communicate with others within the professional community. The beliefs in Category 07 (*Category 07 - Texts chosen for reading practice should be relevant to the students' interests*) reflect students' interest in using the language for learning what they want or need, that is, new developments and matters which will help them deal with their perceived requirements. The beliefs in Category 09 (*Category 09 - Variety in teaching and learning skills, strategies and content should be offered*) relate to using language to understand others, negotiating meaning and co-constructing knowledge. There is some evidence that students would like to have some variety in terms of skills (e.g. listening and speaking), strategies (e.g. interaction with peers) and also in terms of content (e.g. music). The beliefs in Category 11 (*Category 11 - Computers offer increased options for accessibility and communication*) are about the use of computers to communicate with others and access learning material. These beliefs suggest that the focus of the learners is on using the language to cater for their interests and needs within the area of knowledge they are getting into.

The group of beliefs about language and language learning as communication can be seen as conditioned by qualitative conceptions of language and language learning, they all contain an element of responding to a more natural context of language learning. The beliefs in Categories 01, 07, 09 and 11 link language learning to communication. Students believe that English is a means of actively interacting with others within their academic and professional worlds (Category 01). Hence, the texts chosen should also be more relevant to students (Category 07) by being related to technical literature used in their course or, more generally,

in their field, and to new developments in computing. Here, students see the use of computers as a means of accessing the material they need to learn so that they can function within the Computer Science community (Category 11). In addition, students think that learning other skills (e.g. listening and speaking) and a more general content should be offered (Category 09). This variety in skills and content is thought of as expanding opportunities for different kinds of interaction within academic and professional worlds. Since these beliefs suggest qualitative conceptions of language and language learning, they may be seen as dysfunctional in a context mainly grounded on quantitative conceptions (as this classroom appears to be).

Group 3: Beliefs that what is on offer in the ESP classroom is not really satisfactory.

As shown in Figure 6.1, it is possible to identify a group of categories of beliefs that expresses the idea that the ESP classroom is not really satisfactory. The beliefs in Category 02 (*Category 02 - ESP teaching and learning are mechanical and repetitive*) suggest that ESP teaching and learning are mechanical and repetitive. According to the students, learning tasks can be summed up as reading and answering questions about topics they already know, and reading activities are seen as simple and, thus, not meeting the needs of students with higher proficiency levels. The beliefs in Category 03 (*Category 03 - The current ESP provision is not interesting or useful*) seem to indicate that this ESP practice for first year students lacks any value or interest. The beliefs in Category 04 (*Category 04 - Heterogeneity of students' language proficiency is an obstacle for learning*) relate to the heterogeneity - in terms of language proficiency - of the ESP classroom in its present form, and how this constitutes an obstacle for learning since some of the students believe that this prevents them from learning more than the basics of the language.

The categories grouped here might be seen as having being influenced to some degree by qualitative conceptions of learning in that the general dissatisfaction might be seen as partly influenced by beliefs based on qualitative conceptions since the existing practice is seen as being primarily dominated by quantitative conceptions. However, this influence is insufficiently strong or clear to merit these categories being definitely described as being influenced by qualitative conceptions.

Group 4: Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers.

Also shown in Figure 6.1, it is possible to identify a group of categories of beliefs that involve the idea that computers might support a more autonomous approach to ESP learning. The beliefs in Category 12 (*Category 12 - Computer technology allows students more autonomy*) are about the use of computers for learning and the autonomy they make possible. One belief is that students can do research, learn by themselves, and initiate interaction. However, some negative aspects of autonomy are recognized such as the possible lack of motivation to study by oneself. This search for individual autonomy seems to support beliefs in Category 04 (*Category 04 -Heterogeneity of student language proficiency is an obstacle to learning*). The autonomy computers offer is seen as a means of dealing with this heterogeneity because students can pursue their own learning needs and wants without having to wait for other with lower proficiency levels.

Benson and Lor (1999) suggest a connection between autonomy and qualitative conceptions. The authors understand that learners who adopt qualitative conceptions have more to gain from autonomous learning; however, they also understand that learners hold different conceptions depending on the context requirements. In the data discussed here although the students talk about learning by themselves, gaining control over content and pace, initiating interaction, there is no clear indication as to whether they conceive language qualitatively or quantitatively. These beliefs about autonomy may be dysfunctional in this context as it is a context which makes no room for learner autonomy, and indeed requires students to do the same work at the same pace.

6.4 Summary

In this chapter, I presented the analysis of data gathered from individual semi-structured interviews that were carried out to access the students' construction of the ESP classroom, that is, how students construct ESP teaching and learning and ESP teaching and learning aided by technology.

Twelve categories of beliefs were found in the data and were initially grouped as:

1. Beliefs about ESP teaching and learning as experienced in class;
2. Beliefs about how ESP teaching and learning should be carried out;
3. Beliefs about ESP teaching and learning with technology.

Later, a more theoretically-based analysis led the different categories of beliefs found in the data to be grouped into four areas:

1. Beliefs that what is on offer in the ESP classroom is not really satisfactory;
2. Beliefs about language and language learning as accumulation;
3. Beliefs about language and language learning as communication;
4. Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers.

The categories of beliefs in the group ‘Beliefs about language and language learning as accumulation’ are clearly identifiable as conditioned by quantitative conceptions of language and language learning. The categories of beliefs in the group ‘Beliefs about language and language learning as communication’ are clearly identifiable as conditioned by qualitative conceptions of language and language learning. However, beliefs in the other two groups are not so obviously conditioned by either qualitative or quantitative conceptions.

The group of categories of ‘Beliefs that what is on offer in the ESP classroom is not really satisfactory’ contains beliefs which indicate some tension between the way the classroom is set up by the teacher and the students beliefs of what it should be like. The students express some beliefs that are conditioned by quantitative conceptions, but some of these beliefs are not seen in the classroom practice even though this is seen as primarily characterised by quantitative conceptions. For example, some grammatical features which are regarded by some students as important are not taught in the classroom.

The group of categories of ‘Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers’ contains beliefs that refer to computer resources such as the Internet as offering a space to support the students’ autonomy. However, there is no strong indication that this idea of autonomy is strongly influenced by either qualitative or quantitative conceptions.

Some of the beliefs found may be seen functional within the learning context under investigation; some of them can be seen as dysfunctional. Beliefs about learning vocabulary (Category 05, 08 and 10) may be seen as functional since learning vocabulary seems to be a substantial part of the teacher's teaching effort. On the other hand, beliefs about learning in sequence (Category 06) may be seen as dysfunctional in a learning environment in which the students do not feel that the content is presented in a comprehensible progression.

Whilst I have presented the beliefs as if they form a homogenous whole, it needs to be acknowledged that on some issues different students have different beliefs – so for instance, some students believe that technical vocabulary should be taught in the ESP classroom, whereas others believe that non-technical, general technical vocabulary should be taught.

The chapter which follows addresses the second research question by investigating to what extent students' participation in the design of a computer-based learning environment sheds some more light on the way they construct the ESP classroom.

CHAPTER VII

ANALYSIS OF DISCUSSIONS HELD IN THE DESIGN SESSIONS, STUDENTS' ONLINE DIARIES AND THE FINAL INTERVIEWS

7.1 Introduction

The idea of involving students in the design of a Web Portal emerged from the view that involving users in design might be a powerful method of getting at their understanding of the context for which they are designing.

As reported in the Chapter 6 their understanding was initially investigated through individual interviews and that analysis of the data suggested that the students' beliefs about the ESP classroom could be grouped into four themes:

1. Beliefs about language and language learning as accumulation.
2. Beliefs about language and language learning as communication.
3. Beliefs that what is on offer in the ESP classroom is not really satisfactory.
2. Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers.

This organised collection of categories of beliefs is what I have called the students' construction of the ESP classroom.

The data that was examined in Chapter 6 was derived from individual interviews, but the data examined here is somewhat more complex. It was data collected during the creation of a shared resource (a Web Portal) by the students to support the ESP learning. The data examined in this chapter also includes some data (the online diaries and the final interviews) which were collected on an individual basis, but its principal component is the group discussions recorded during the workshop sessions.

This chapter provides an analysis of the data collected during the workshops, online diaries, and final interviews in order to obtain a broader picture of the students' construction of the ESP classroom, and so to address the second research question:

2. To what extent does students' involvement in the process of designing the computer technology for ESP bring to the light different elements of this 'construction'?

The analytical framework developed by Benson and Lor (1999) based on the distinction between qualitative and quantitative conceptions of and beliefs about language and language learning that was used in the analysis in Chapter 6 is again applied in this analysis.

The data analysed in this chapter is derived from three sources:

1. Tape recordings of what was discussed during the workshops, in which the participants were: the researcher (RE), the Computer Science students (S1, S2, S3, etc), the ESP teacher (TE) and the Software Engineering teacher (SE);
2. Students' entries in online diaries;
3. Tape recordings of the final individual interviews which were used to clarify issues from the initial interviews and the workshops. The following issues were explored with students in the final interviews (FI) (Appendix 2 – Final Interviews Protocol):
 - issues which emerged in the initial interview;
 - assessment of the Portal design;
 - assessment of participatory practice.

With the data at hand, the coding process was initiated by identifying sections of the students' comments relevant for answering the research question given above. A total of 230 sections of text were identified which comprised approximately 30 per cent of the whole data: this consisted of 144 sections from the transcripts of the workshops, 18 from the online diaries, and 68 from the transcripts of the final interviews. The 70 per cent of the data not analysed was related to interface design, such as navigation issues and the position of the menu in the homepage. Coding was carried out initially by use of the categories which emerged from the analysis of the initial interview described in the previous chapter, and during the coding

process it was decided to revise to some degree the definitions of some the categories in light of the new data, and some new categories were defined in order to categorise data which did not fit into existing categories.

The analysis conducted in this chapter is illustrated by extracts and the coded unit is highlighted within each extract. Some surrounding context such as the specific question asked by the researcher or key interventions made by other participants is also included when identified as relevant in order to throw light on the students' comments. The origin of the text is indicated by keys, for example W1_p.2 means page 2 of the transcription of the Workshop 1, FI_p.3 means page 3 of the transcriptions of the final interview, and D_p.12 means page 12 of the Online Diary records.

This chapter is divided into four sections. I will first present a brief overview of the Portal design, which is expected to help readers create a picture of the Portal and understand the role played by the design elements which appear throughout the analysis of the data. Then, I will present the main part of this chapter which is the actual analysis of data. Some evidences on students reviewing and questioning their own beliefs, which were identified during the design process and in the final interviews will be presented next. Finally, I will discuss the data analysed.

7.2 Designing the Portal

A Portal is defined here as a website which contains a set of resources and links to other websites relevant to the theme of the Portal, and which is targeted at a particular audience, in this case Computer Science students studying ESP.

The participants in the design process - Computer Science students, the ESP teacher and the Software Engineering teacher - were invited to design a Portal that would be implemented at a later date, and used by ESP teachers and students in the following academic years. This design process, which was carried out in nine workshops over a period of five weeks, defined the possible content of the Portal as described below.

Homepage

Students designed a homepage for the module. This homepage would be the entrance to the other sections of the Portal.

Course-related content

The students suggested this section as a means of making the texts and activities set by the teacher in the ESP classroom available in the Portal before being used in class so that students could prepare themselves *before* the class. This suggestion was about providing extra access to the course content, rather than about replacing the teacher's direct instruction.

Additional content

Students made a number of suggestions about what should be added to the content offered in the ESP classroom and they decided to add more technical texts, comprehension exercises, and grammar exercises. This area of the Portal was also thought of as a means of making available technical content that would help them with their computing-related modules. Access to this technical content was seen as potentially motivating students to access and use the Portal. Students would also be allowed to add their own material in this section. The students raised a concern about ending up with a large number of suggested sites which might then not be used, but discussion of this potential problem was not followed up further. There was no discussion about the quality of these links or their maintenance.

Extra-curricular content

Much of the students' discussion centred on extra-curricular content, that is, content that was not necessarily related to computing, such as content related to English culture (e.g. films, music) or general content in English with an entertainment function (e.g. comic strips). The content of this section was not intended for entertainment for its own sake but as a space for materials that might support greater variety in ESP teaching and learning.

Supporting tools

Two kinds of tools were added to the Portal in order to support ESP learning: a forum and dictionaries (both general and technical)

Forum

The idea of adding a forum facility emerged from a need for a space for discussion. First of all, a chat - a synchronous communication facility - was suggested, however, the idea was abandoned because of the different levels of English language proficiency found in the classroom, since students with lower proficiency levels argued that they would not use chat but that they would use a forum

Whilst the forum was primarily seen as a space for discussion, it was also seen as a useful space for solving vocabulary and grammar problems by posting problems on line and asking for help.

Dictionaries

Both dictionaries and translators were initially described as useful tools. However, students decided not to add translators because they felt that they did not take the context into account unlike dictionaries which were seen as giving the different meanings of a word and leaving to the users the analysis of the context and so the selection of the best meaning to fit the context.

Another feature of online dictionaries stressed by the students was that they are quicker to access than paper-based ones since students have access to a computer most of the time. It was agreed that both general and technical dictionaries are useful.

Summary

The discussion during the workshops indicates that the students think that the Portal should be designed with the following features:

- An initial (home) page with a menu linked to the following pages:
 - Course-related content: with links to the content given by the teacher in the classroom;
 - Additional content: with links to materials related to the classroom content and extra activities (e.g. grammar exercises);
 - Extra-curricular content: with links to areas of interest not necessarily related to the classroom content, including links to entertainment content;
 - Forum;

- Dictionaries: links to both general and technical dictionaries.

7.3 Students' beliefs as expressed in the Design Sessions, Online Diaries and Final Interviews

This is the main section of the chapter and presents an analysis of the data regarding students' beliefs which emerged in the workshops, online diaries, and final interviews. As indicated in the research question, the main aim is to find evidence from the students' involvement in the process of designing computer technology for use in ESP teaching and learning that could bring to light different elements of the students' 'construction' of the ESP classroom from those already identified.

In the initial interview, four groups of beliefs were identified and each one will be readdressed here and some further light will be shed on these different elements of the students' construction of the ESP classroom. Also, some beliefs which were not apparent in the initial interviews will be presented.

7.3.1 Group 1: Beliefs about language and language learning as accumulation.

In the initial interview, a number of categories of beliefs were identified as indicating a view of language as a grouping of different elements (e.g. vocabulary, grammar) and language learning as accumulation of these different elements, that is, beliefs conditioned by quantitative conceptions of language and language learning. These categories were:

- Category 05 - Learning vocabulary in Computer Science is important.
- Category 06 - Grammar should be taught in a sequence.
- Category 08 - Greater stress should be placed on vocabulary.
- Category 10 - Computer resources are valuable for learning vocabulary.

Beliefs from three of these categories were identified in the new data collected.

Category 05 - Learning vocabulary in Computer Science is important.

During the first workshop (W1), when discussing why English was a need for Computer Science students, the belief that knowing technical vocabulary is important emerged:

S1: *você vê um termo muito técnico que não faz ideia (.) nem pelo contexto (.) do que significa (...) aí te ajuda um pouco a ver mais ou menos isso (.) se não fica perdido (.)*
[W1_p.2]

S1: *You see a lot of technical terms and you don't have a clue of what they mean. Then it helps with that. You don't get lost.*

Extract 7.01

Different from Category 05 identified in Chapter 6 (Section 6. 2.1) which focus was on both technical and non-technical, general vocabulary, here students' interest is on learning the technical one.

Category 06 - Grammar should be taught in a sequence.

The idea of sequencing the language content to be learned (i.e. grammar) as facilitating learning or providing a sense of progression which had been found in the initial interview was identified here as in Extract 7.02 below:

S3: *aqui na faculdade é meio complicado (.) é diferente (...)*
RE: *o que é diferente (?)*
S3: *na escola de inglês (.) você começa do começo(.) que nem a (.) b (.) você segue uma linha (.)*
[FI_p.02]

S3: *Here in the college it is quite complicated. It's different.*
RE: *What's different?*
S3: *In the language school you start from scratch: it's a, then b. You follow a line.*

Extract 7.02

S3 argues that what differentiates the ESP practice they experience in their course from that in language schools is the fact that the latter follows a sequence of content. In the extract below, however, there is evidence of a belief regarding the learning of vocabulary, which had not emerged in the initial interview, namely that it is necessary to have some knowledge of the language before being introduced to technical terms:

S4: *Eu acho que (...) deve precede que a pessoa já sabe um pouco de inglês pra poder saber o inglês técnico.*
[W5_p.31]

S4: *I think that, in order to learn technical English, it is necessary to have some knowledge of English.*

Extract 7.03

As such, Category 06 was reworded to *Category 06 -Grammar and vocabulary should be taught in a sequence.*

Category 08 - Greater stress should be placed on vocabulary.

During the workshops, no belief related to those in Category 08 was identified. In the first model there were two categories related to vocabulary: 05 Learning vocabulary in Computer Science is important and 08 Greater stress should be placed on vocabulary.

These had emerged at least in part because of the nature of the questions used in the interviews. Beliefs in Category 05 arose in response to interview questions related to the students understanding of the teacher's best practices, and those in Category 08 arose in response to interview questions related to their understanding of their language needs. In the workshop there was less opportunity to express views related to the pedagogy in use and this probably explains why there were no beliefs related to this category identified in this data. This observation led to a rethinking of the categorisation, and it was decided to integrate category 08, which is more specific, within the more general category 05.

Category 10 - Computer resources are valuable for learning vocabulary.

The belief that computers are valuable resources for learning vocabulary was expressed in the design sections. Here there is a justification for that: online dictionaries could be vast and yet easy to access:

S4: então (.) uma coisa que tinha que ter no site é [...] um dicionário (.) entendeu (?) vasto mesmo assim (.) várias palavras (.) você digita uma palavra em português e ele já dava (a tradução?)
[W2-p.15]

S4: One thing that should be there at the site is a dictionary. Vast, with many words and that allow you to enter a word in Portuguese and gives you the translation.

Extract 7.04

While S1 initially believed that learning technical vocabulary was important for Computer Science students, after some time dealing with the prototype of the Portal, he suggested that non-technical, general vocabulary should also be available as a part of the *Forum*:

RE: e o nosso [fórum] (?) vai ter áreas (?) quais (?)

SI: pode ter assim uma parte quando a pessoa tem dúvida de vocabulário (...) ela foi para a Austrália e ouviu um vocabulário que ela nunca ouviu falar e pede ajuda (.)
[W6_p.6]

RE: What about our forum? Will there be areas? Which ones?

SI: It could have a part for solving vocabulary doubts. Someone went to Australia and heard vocabulary that she had never heard before and she asks for help.

Extract 7.05

In the initial interview the emphasis had been on Computer Science vocabulary (Chapter 6, Section 6.2.1), now, there is evidence of an interest in both technical and non-technical general vocabulary.

New category - Category 13

A new category of beliefs related to accumulation was identified in this data, namely a view of learning as a means of dealing with the assessment requirements posed by the context and, consequently, of obtaining good marks. S1 argued that assessment should be a significant feature of the design:

TE: *como eu faço pra trazer essas pessoas para esse ambiente (?)*

S6: *dá zero na primeira prova pra todo mundo pra voce ver como eles veem (.)*

[W1_p.15]

S1: *se ele vai no site (.) ele ganha nota (.) trabalhando dentro do site (.) se ele vai lá (.) faz algum exercício no site (.) material que deixa lá e isso faz ele precisar estudar menos pra ele ganhar nota porque ele já vai ter um pouco de nota de graça (.) isso daí pra não precisar depois (...) estudar muito pra prova (.)*

[W9_p.08]

TE: *what do I do to attract students to this environment?*

S6: *You give zero to everybody in the first test and you will see that they come.*

S1: *If he goes to the site, obtains a mark by working in the site, that would make him study less to get good marks because he already has got some grades for free. He won't have to study much more for the tests later.*

Extract 7.06

In the extract below, S5 expresses the view that there needs to be a link between the content of the Portal and the content of their tests:

S5: *se na minha prova não vai cair nada parecido (.) eu não iria atrás (.) como seria numa prova e como seria no Portal (.)*

[FI_p. 4]

S5: *if there is nothing in my test, I would not go for it. It should be the same in the test and in the Portal.*

Extract 7.07

Thus, a new category of beliefs is identified here:

Category 13 –Teaching materials need to be closely aligned to assessment demands.

As the actual practice in the context under investigation was described by the students mainly in quantitative terms, the extracts above suggest that assessment, via tests, should align with this practice in the Portal being designed. Thus, this category has been assigned to the group

“Beliefs about language and language learning as accumulation” as these beliefs implicitly view progress in language learning as equivalent to improved test scores, that is, as an accumulative process.

7.3.2 Group 2: Beliefs about language and language learning as communication.

In the initial interviews four categories of beliefs were identified as involving the idea of communication which is a central theme of qualitative conceptions of language and language learning. These categories were:

- Category 01 - Learning English is important as means of communication in academic and professional contexts.
- Category 07 - Texts chosen for reading practice should be relevant to the students' interests.
- Category 09 - Variety in teaching and learning skills, strategies and content should be offered.
- Category 11 - Computers offer increased options for accessibility and communication.

As described below, beliefs in Categories 01, 09 and 11 were identified in the new data analysed in this chapter. The definition of Category 07 was expanded to take in some new but closely allied beliefs.

Category 01 - Learning English is important as a means of communication in academic and professional contexts.

A discussion about the importance of learning English was held in the first workshop (W1). Some beliefs were identified and they were, in general terms related to learning English as being important to (i) communicate in the academic and professional contexts – whether it be in written or oral forms and (ii) access research sites, course books and documentation. These are exemplified below:

S4: *não dá tempo de traduzir o material existente (.) por exemplo (.) sai um produto novo e o manual sai em inglês (.) não dá tempo de traduzir (.) outros que não fizeram isso estão na frente (.)*

[W1_p.2]

S4: *There is no time to translate manuals of new products launched and the one who does not have to translate them is a step forward.*

SI: (...) se for trabalhar em uma equipe de fora (.) a língua que vai ser usada vai ser a língua inglesa por causa que vai querer se comunicar com outras equipes ou outras pessoas pra te ajudar no que você estiver fazendo (.)

[W1_p.2-3]

SI: If you're going to work with a team from abroad, you're going to communicate in English.

Extract 7.08

Category 07 –Texts chosen for reading practice should be relevant to the students' interests.

One of the students had mentioned that the texts chosen for reading practice should help them deal with specific module requirements (e.g. Computing I):

SI0: mas se colocar o help do Pascal (.) HTML (.) Flash (.) é (.) PHP (.) uma coisinhas a mais assim na página (.) seria uma (.) só de (..) saber que (.) só eu sabendo que nessa página vai me ajudar em (.)nessas linguagens (.) nesse (.) em ajudar a computação (.) pra mim é uma coisa que eu entraria (...)

[W2_p.34]

SI0: We could add the Pascal help, HTML, Flash, PHP. If I knew that this page would help me with computing, that will make me access the page (.)

Extract 7.09

The need to access texts in English seemed to have a greater relevance in these discussions than in the initial interviews. This was shown in a discussion, led by the teacher, about what skills should be focused on in the ESP classroom where the students stressed the importance of reading in English:

TE: (...) e qual dessas quatro habilidades [ler, escrever, ouvir e falar] que a gente precisa se concentrar mais (?)

[alguns alunos respondem leitura]

TE: a leitura (.)

[W1-p.4]

TE: Which one of these four skills [reading, writing, listening, speaking] do we need to concentrate on?

[some students answer reading]

TE: Reading.

Extract 7.10

The extracts above suggest that Category 07 -Texts chosen for reading practice should be relevant to the students' interests might usefully be expanded to accommodate the belief that learning how to read in English is more important than learning other skills (e.g. listening and speaking). Thus, Category 07 is now labelled as Category 07 - Greater stress should be placed on reading, and on the reading of texts relevant to the students' interests.

Category 09 - Variety in teaching and learning skills, strategies and content should be offered.

On different occasions in different workshops there were statements by the students suggesting that they wanted some variety in the ESP classroom in terms of skills, strategies and content. This is explicitly stated below:

SI: só que não adianta você utilizar uma estratégia só pra atingir o aluno que ele vai cair primeiro naquela estratégia (.) aí depois ele vai cansar daquilo lá e ele vai (.) ele vai (.) não vai cair (...)

RE: me da um exemplo de uma estratégia que você (.) o quê que você tá chamando de estratégia (?)

SI: digamos (.) coloca filme pro cara (.) coloca lá (.) assiste tal filme pra pegar tal matéria (.) ele vai cansar de assistir filme pra aprender a matéria (...) você pega (.) você tem que diversificar (.) você pega (.) você pega tal parte (...?) você coloca jogo (.) tal parte você coloca filme (.) tal parte você coloca texto (.) tal parte você coloca help (.) coloca a linguagem [de programação](...)

[W2_p.33/34]

SI: There is no use you using a strategy just to reach out to the student because he is going to be attracted by it, but, later, he is going to get tired of it. He's not going to get caught again.

RE: Give me an example of what do you mean by strategy.

SI: Let's suppose you show a guy a film and ask him to watch the film and learn from it. He's going to get tired of seeing films and learning from it. You have to diversify with a game, a film, a text, [programming] language.

Extract 7.11

Since the existing ESP classroom practice concentrated on the teaching of reading skills, it is to be expected that students' beliefs that learning English is important as a means of communication in academic and professional contexts (Category 01) should lead to beliefs that students also need to learn the additional skills of speaking and listening.

Students also expressed their view that variety of content, in terms of additional Computer Science texts, grammar and English culture should be offered in the Portal:

S6: aula de inglês eu acho (...) eu (.) eu propus já também (.) acho que umas três reuniões atrás que tivessem (.) assim (.) não só o conteúdo da aula (.) como um apêndice a mais assim (.) outros textos relacionados com o mesmo assunto (.) mais um(.) como podemos dizer (.) um exercício ou outro que não foi dado na aula (...)

[W5_p.48]

S1: as áreas têm separações mais gerais (.) dá pra deixar uma área geral (.) aí o aluno pode ir lá e deixar dúvidas de vocabulário geral (.) de construção de linguagem geral (.) de cultura geral (.) aí depois (.) embaixo (.) atividades do Portal(.)

[W6_p.12]

S6: I also suggested that, not only the class content, but an appendix with other related texts with the same topic.

S1: The areas have more general chunks. There could be a general area and then the student goes there to share his doubts with general vocabulary, general language construction, and general culture. Then, below, activities of the Portal.

Extract 7.12

Category 11 - Computers offer increased options for accessibility and communication

During the workshops, students argued that the (virtual) presence of the teacher in the Portal would provide encouragement and motivation for learning:

S2: a primeira coisa que tem que ser feita e oferecer ao aluno todo o apoio possível para animá-lo a estudar e assim fazer tornar um hábito para ele. [sic]

[D_p.2]

S2: The first thing to be done is to offer students every possible support to encourage them to study and make them accustomed to it.

S1: Uma coisa que acho que deve ser feita ao ser implementado o portal é comunicar aos professores de língua inglesa para que todos usem as funcionalidades do portal em suas aulas usassem, por exemplo, um chat para que os alunos tivessem apoio enquanto estudassem em casa. [sic]

[D_p.10]

S1: One thing that could be implemented on the Portal is to communicate with teachers of English so all of them use the Portal functionalities in their classes. Use, for example, a chat facility so students have support when studying at home.

Extract 7.13

S1 also suggested that the Portal could be a place for interaction with native speakers of English. He assigns to native speakers the task of helping them and assessing the content of the Portal:

SI: naum sei se as pessoas seriam tao caridosas assim, mas e se falassemos (de algum modo) com alguns americanos, canadenses e britanicos para que fizessem visitas ao portal de vez em quando respondendo as duvidas dos estudantes atraves do forum ou entao avaliando o conteudo de ensino do portal?[sic]
[D_p.33]

SI: I don't know if people would be so charitable but do you think we could contact some American, Canadian, and British people so they can visit the Portal and answer students' queries through the forum or by assessing the content taught on the Portal?

Extract 7.14

The findings from the second set of data signalizes that, although the aspect of accessibility is stressed in the initial interview (Chapter 6, Section 6.2.3), here the aspect of communication is strengthened.

7.3.3 Group 3: Beliefs that what is offered in the ESP classroom is not really satisfactory.

A number of beliefs identified in the initial interviews expressed students' dissatisfaction with their ESP classroom. As discussed in the previous chapter (Chapter 6, Section 6.3), there were no strong links between these beliefs and quantitative or qualitative conceptions of language and language learning. These beliefs were categorized as following:

- Category 02 -ESP teaching and learning is mechanical and repetitive.
- Category 03 -The current provision of ESP is not interesting or useful.
- Category 04 -Heterogeneity of student language proficiency is an obstacle to learning.

Category 02 - ESP teaching and learning is mechanical and repetitive.

S1 indicated, as shown below, that the ESP practice might be mechanical and repetitive (*Category 02 -ESP teaching and learning is mechanical and repetitive*) when he stated that the current practice is monotonous when compared to the practice he had experienced in a private language school:

S1: (...) praticamente o que me segurou no curso de inglês (.) quando eu fiz (.) foi a conversação (.) além de você aprender bem mais fácil e bem mais rápido (.) você não se desliga (.) é uma coisa que você consegue manipular mais fácil (...) ficar só lendo fica uma coisa monótona (.) [W1_p.10]

S1S1P: Practically the only reason why I went on orwith the English course [private language coschool] was the conversation. Apart from eamaking learning easier and faster, you don't sohang up. It's something that you can handle reeasily. Just reading is monotonous (.)
S6: And if there was a chat?

Extract 7.15

Beliefs in Categories 03 and 04 were not identified in the new data analysed. One possible reason was that, since the teacher was part of the design team, students may not have felt free to describe the ESP classroom in the terms expressed in the statements of beliefs within these categories. Another reason might have been that the students were not asked to evaluate the current ESP practice in these discussions.

7.3.4 Group 4: Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers

As described in Chapter 3 (Section 3.3), the issue of autonomy is defined by Benson and Lor (1998) as being when students have control over their learning and as something which encompasses “active involvement in the learning process, responsibility for its content, control over factors such as time, frequency, pace, settings and methods of learning, and critical awareness of purposes and goals” (p.8). Some of these learning management elements can be identified and are present in the beliefs described below. As discussed in the previous chapter (Chapter 6, Section 6.3), there were no clear evidences which would support a links between the beliefs categorized here and quantitative or qualitative conceptions of language and language learning.

- Category 12 Computer technology allows students more autonomy.

During the workshops, students argued that they could use computers in their language learning in order to operate more autonomously than without the use of computers. In the

extract below, S2 suggested that he could initiate his own learning. The same seems to be found in the words of S10:

S2: *(..?) a próxima aula (...) já deixa disponível para o aluno dar uma lida (.) estudar (...)*
[W6_p.27]

RE: *áí tem uma hora [na entrevista inicial] que você fala assim “agora não tem nem o que pesquisar nem o que fazer com a matéria de inglês” (.) o portal pode mudar isso (?)*

S10: *muda (.) a gente sabe que vai estar lá a matéria (.) que é um lugar que vai pesquisar (.) já é uma coisa a mais para a gente (.) né (?)*
[FI_p.3]

S2: *Make it available beforehand so the student can read, study.*

RE: *There is one moment [in the initial interview] when you say “there is nothing to investigate or to do with the ESP module”. Can the Portal change that?*

S10: *Yes it can. You know that the content will be there. That it’s a place for investigating. It’s something more for us.*

Extract 7.16

Possibly as a reflection of the fact that the students described the ESP module negatively in terms of the content available (*Category 03 -The current ESP provision is not interesting or useful*), S10 suggested that different content should be provided by students themselves in order to improve what was offered by the module:

S10: *tipo (.) vai acrescentando assim (.) sabe (?) de repente lá (.) você do nada (.) é (.) entrou numa (.) numa pagina e essa pagina é muito boa (.) áí você coloca sugestão (.)ó (.) tal pagina (.) entra lá (.) vocês vão dar uma olhada (.) ela fala sobre não sei o que (.) não sei o que (.) não sei o que (.) se precisar (..?) tem gente que já conhece várias (...)*
[W5_p.42]

S10: *I mean, you found a page and this page is very good. Then you add it as a suggestion.*

Extract 7.17

Also, one of the prime intended uses of the Portal was for students to interact with content, and students believed that their perceived learning needs and difficulties should determine the nature of this interaction:

S1: como é linguagem eu acho que poderia ser (.) digamos (.) só (.) só o fórum (.) não precisa ser separado (.) tem problema de vocabulário (.) vai na hora (.) tem problema de construção (..?)

[W5_p.9]

RE: você usaria o Portal (?)

S4: eu usaria(.

RE: o que você usaria mais (?)

S4: eu acho que o aluno entrando no Portal vai ver a necessidade dele (...) alguma coisa vai atrair ele e ele vai precisar do inglês (...) no próprio Portal ele vai achar o inglês ali (.)

[FI_p.2-3]

S6: eu ia ver o que tenho de dificuldade e iria procurar lá se tem ajuda quanto a isso (.) se eu tivesse uma dificuldade (.) vocabulário (.) eu iria procurar (.) iria direto na sessão de dicionário e ver se ia conseguir usar e aproveitar alguma coisa (.)

[FI_p.3]

S1: If you have problems with vocabulary, if you have problems with [language] construction, you go there [to the Forum].

RE: Would you use the Portal?

S4: Yes, I would.

RE: What would you use most?

S4: I think when the student gets into the Portal, he will feel his need. Something will attract him and he will need English. He will find the English language there.

S6: I would see where my difficulty lies and I would go there to check if there is any help provided for it. If I had any difficulty with vocabulary, I would go straight to the section on dictionaries and see if I could use something.

Extract 7.18

New category - Category 14

The extracts below suggest that students with different levels of proficiency could work together to carry out tasks, help each other, and solve their learning problems within the Portal:

S6: então (.) aí você pode ir no chat (..?) tá fazendo (.) um tira dúvidas como se estivesse fazendo juntos (.) o trabalho (...)

[W2_p.13]

S3:um colega auxilia o outro (.)

[W3_p.3]

S1: aí cada um pode (.) ah (.) fazer o comentário que quiser (.) a proposta que quiser (.) tira dúvidas (.)

[W3_p.5]

S6: You can go to the chat. Someone can solve another person's queries as if they were working together.

S3: One colleague helps the other.

S1: Each one can make any comment he/she wants, any suggestion he/she wants to clear up any problems.

Extract 7.19

In the last workshop (W9), S6 argued that the classification of a student as a beginner might put them in an inferior position compared to his/her colleagues and, consequently, hurt his/her pride:

S6: *como analisar quem é de cada nível (?) dependendo da pessoa (.) falar assim (.) se classificar assim (.) você é iniciante (.) você fica aqui (.) você vai ter que lidar com o orgulho da pessoa (.) não é qualquer um que (...)*

[W9_p.9]

S6: *How can one analyze who is at each level? If you classify as you're beginner, you stay here. You have to deal with his pride.*

Extract 7.20

In the final interviews students recognized and accepted that they were different in terms of learning needs and learning difficulties and that these differences need to be accommodated in the learning environment being designed.

RE: *você falou antes dessa questão de aprendizagem que você não tinha percebido antes e percebeu aqui (.) tem alguma coisa que você se lembre e que você possa me dar um exemplo (?)*

S1: *as necessidades do aluno para ele aprender (.) as dificuldades dele (.) como ampliar (.) digo (.) para quem conhece alguma coisa e quem não conhece nada (.)*

[FI_p.10]

RE: *You talked about this question of learning before and said that you hadn't noticed things before that you noticed here. Is there anything you can remember and can you give me an example?*

S1: *What the student needs to learn. His difficulties. How to makes things better for those who know something and for those who don't know anything.*

RE: *nesse tempo que ficamos juntos (...) teve alguma coisa que você percebeu nessas reuniões (?) sobre os alunos (...) que você não tinha percebido antes (?)*

S4: *tem bastante (...) por exemplo (.) que eles (...) que a gente descobriu que o que o aluno precisa para aprender (.) entendeu (?) que cada um é diferente (.) cada um tem um jeito de aprender (.) é bom porque aí você tem que fazer um site pensando em todo o tipo de aluno que tem (.) não só por exemplo (.) em você (.) né (?)*

[FI_p.5]

RE: *Is there anything that you noticed in these meetings about the students and that you hadn't noticed before?*

S4: *A lot. For example, we found out what the learner needs to learn. That everyone is different. That everyone has a different learning style. You have to make a site thinking about every kind of student rather than only on you.*

Extract 7.21

These beliefs can be grouped in a new category:

Category 14 - Computer technology allows a more social autonomy

The arguments made by the students that computers allow them to help and learn from each other, and that the learning environment should support different needs and difficulties led to the creation of a category which emphasises a more social autonomy. As a consequence, Category 12 needs to be reworded as **Category 12 Computer technology allows students more individual autonomy.**

New category - Category 15

As the students were familiar with computers, S6 said that computers offered a less threatening learning environment for Computer Science students than the traditional classroom. S1 suggested that the design of the Portal should correspond to what users were used to, that is, the design should be similar to the sites they accessed and games they played:

S6: tem que ta no território dele (.) se você colocar no território dele (.) ele vai se sentir mais seguro (.)
[W1_p.15]

S6: It needs to be in his territory. If you put it in his territory, he will feel safer.

S1: vamos imaginar assim (.) quem vai usar (?) você vai usar um site para estudar um pouco de língua (.) a pessoa tem que ta consideravelmente relacionada com o ambiente do computador (.) ou seja (.) você faz uma coisa assim parecida com o computador que ela mexe já (.) com jogos que entra (.) o site (.) alguma coisa assim que a pessoa ela vai encontrar tudo em inglês (.) ela vai passando por esse ambiente que ela conhece (...)
[W1_p.15]

S1: You do something like the computer the user used to. The games she plays, the sites. She is going to find everything in English. She goes through this environment she knows.

Extract 7.22

These beliefs can be grouped in a new category:

Category 15 - Computers provide a familiar learning environment

Whilst the idea that the computers provide a familiar learning environment has no necessary link to the idea of autonomy, I have decided to put it into Group 4 since it is likely that students working in a familiar, comfortable environment will feel more able to take control of some aspects of their own learning.

7.4 Rethinking practices

Whilst the primary interest in this chapter is on finding additional insights into the students existing beliefs about ESP teaching and learning, there was some evidence in the final interviews that the design process might have caused some students to actually review or question their beliefs about ESP teaching and learning. The extract below is one example of that:

RE: *you said you needed English to attend conferences and lectures. After our discussion here, have you changed your opinion?*

S3: *I'm not sure anymore. You don't have an idea of what comes ahead. I'm not sure what I need English for.*

[FI_p.1]

RE: *You said that we could have more listening and speaking activities. Do you still have this opinion?*

S2: *The most important now is to understand texts and have more listening activities. Speaking isn't going to be so important.*

[FI_p.1]

RE: *You said that speaking was important.*

S5: *I've changed already.*

RE: *Why?*

S5: *(..?) We don't have time to practice.*

[FI_p.2]

Extract 7.23

While S3 is not sure any more about what his needs really are, S2 and S5 seem to have gained a broader view of the context, and both have reconsidered the importance that they give to speaking, and S5 now thinks that the time available for learning ESP is insufficient for oral interaction.

It is also possible to say that students became more aware about the complexities of the teacher's and students' roles in the classroom. In the final interview, S4 said that he had

thought that the teacher's role was just to 'convey' the content, but that he had now come to understand that there were different forms of teaching:

S4: *para mim (.) o professor chegava [fala sorrindo] (.) passava as coisas e pronto (.) eu pensei que era uma coisa mais fácil (.) mas agora a gente viu como é mesmo (.) como é que funciona (.)*

(...)

eu acho que os professores (...) cada um tem uma forma de explicar (.) né (?) é bom que a gente percebeu que tem certos (...) por exemplo (.) esse site é uma forma de ensinar e (..?) é outra forma de ensinar e por aí vai (.)

[FI_p.6]

S4: *For me, the teacher arrived [laughing], passed on some things and it's over. I thought that it [the teaching practice] was easier, but now we can see how it really works.*

(...)

I think that teachers, that everyone has a way of explaining. It's good that we noticed that there are certain, for example, this site is a way of teaching and it's another way of teaching.

Extract 7.24

Students seemed not to be used to reflecting about learning and, after participating in the design of a teaching and learning environment, they were more able to analyse their difficulties and help the teachers to teach them. S6 understood that, by observing what is required from him, he could play a more effective role in the learning process:

S6: *quando a gente não aprende (.) a gente não se preocupa assim qual é nossa dificuldade (.) a gente sabe que a gente não sabe e não sabe (.) desiste de vez (.) agora vendo aqui como é para ensinar (.) talvez a gente pense duas vezes como é para aprender (.) né (?) a gente começa a analisar melhor nossas dificuldades e tentar (.) sei lá (.) tentar ajudar o professor a ensinar a gente (.)*

[FI_p.3]

S6: *When we don't learn, we don't worry about what our difficulty is. We know that we don't know and we don't know. We give up right away. Now seeing here what it's like to teach, maybe we think twice about what it's like to learn. We start analysing our difficulties better and try to help the teacher to teach us.*

S6: *além de estudar (.) o que já é um bom começo porque nem estudar a gente fazia antes (.) um método de estudo (.) ao invés de ficar indo só na sala e sentar lá e focalizar sua visão atrás do quadro (.) ficar olhando e não ver nada (.) ir lá e prestar atenção e ver que pontos que ela ta ensinado (.) se ela ta dando ênfase em dialogo (.) se ela ta dando ênfase em texto ou em compreensão de texto (.) conversação ou fonética (.) ver o que ela ta falando e no que você esta se saindo melhor (.) pegar o que você ta se saindo melhor e deixar de lado e pegar o que você ta saindo pior e forçar um pouco naquilo para tentar amenizar (.)*

S6: *Instead of going to the classroom and sitting there and focusing your eyes on the board, staring and not seeing anything. To go there and pay attention to see what points she's teaching. If she's emphasizing dialogue, text or text comprehension, speaking or phonetics. To see what she is talking about and what you're learning better. Get what you're learning better and pay attention to what you're doing worse and lay stress on that to try to improve it.*

[FL_p.4-5]

Extract 7.25

The data suggests that students' participation in the design process is helpful in calling students' attention to the learning context and, then, to help them function more successfully within this context.

7.5 Discussion

This chapter provides an analysis of the data collected during the workshops, from the online diaries, and in the final interviews in order to obtain a broader picture of the students' construction of the ESP classroom, and so to address the second research question:

2. To what extent does students' involvement in the process of designing the computer technology for ESP bring to the light different elements of this 'construction'?

This section will first discuss in 7.5.1 the evidence presented in Sections 7.3 and 7.4 in order to examine any new light thrown on the students' construction of the ESP classroom. As in Figure 7.1 below, the findings presented above enable me to have a broadly consistent picture from the two studies and I have ways of understanding the differences. Consequently, I can propose a new model using the new data to modify the existing model.

As in the previous chapter, the analytical framework developed by Benson and Lor (1999) based on the distinction between qualitative and quantitative conceptions of, and beliefs about, language and language learning will be used in this discussion in order to help to understand the data found. *Conceptions* of learning are conceived of as "what the learner thinks the objects and the processes of learning are" (p. 464), and *beliefs* about learning are conceived of as "what the learner holds to be true about these objects and processes" (p. 464). Language can be conceptualized qualitatively as "an environment to which the learner needs to be responsive in order to learn" (p. 467), and hence is associated with a view of language learning as a process of absorbing language in its natural context of use. Language can be conceptualized quantitatively as a "collection of things" (grammatical concepts, word

patterns, etc.), and hence is associated with a view of language learning as a process of collecting, absorbing and assimilating the component parts of the language. Many of the *beliefs* held by students can be seen as being constrained or conditioned either by qualitative or by quantitative conceptions.

As in Chapter 6, four groups of categories of beliefs were found:

- Group 1: Beliefs about language and language learning as accumulation;
- Group 2: Beliefs about language and language learning as communication;
- Group 3: Beliefs that what is offered in the ESP classroom is not satisfactory;
- Group 4: Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers.

The beliefs within the first group of categories can be seen as conditioned by qualitative conceptions of language and language learning and the beliefs within the second group of categories can be seen as conditioned by quantitative conceptions of language and language learning. The beliefs within the third and fourth group of categories of beliefs do not seem to be clearly conditioned by either qualitative or quantitative conceptions.

It is important to note that the beliefs identified in the second set of data fitted into categories which could be grouped into the same four groups of categories that were identified in the previous chapter, that is, groups of categories related to Accumulation (1), Communication (2), Unease with what is offered (3), and Autonomy (4).

I will first review the categories where no beliefs were identified in this analysis of the second set of data, then look at data that fits clearly into existing categories, then at data which does not fit into existing categories and, thus, requires the construction of new categories, and, finally, data which suggests that category definitions be modified to accommodate the new data.

1- For some categories no corresponding beliefs were identified in this data.

- No beliefs from Category 03 (*Category 03 - The current provision of ESP is not interesting or useful*) were identified, possibly because the presence of their teacher inhibited specific kinds of criticism to be made.

- No beliefs in Category 04 (*Category 04 - Heterogeneity of students' language proficiency is an obstacle for learning*) were found in the second study. This leads to the argument that this category might be reworded as *Category 04 - Heterogeneity of students' language proficiency is an obstacle for learning in the classroom*.
- Finally, beliefs in Category 08 (Greater stress should be placed on vocabulary) were not identified, though since there was some similarity between beliefs in Category 08 and 05, they were merged into Category 05 (*Category 05 - Learning vocabulary in Computer Science is important*).

Although these beliefs were not identified, there is some evidence which indicates why they do not appear in the second set of data. In addition, there are no contradictions which would weaken the data found in the initial interviews. As such, these categories are still present in Figure 7.1 below.

2- Some beliefs identified during the workshops, online diary entries and final interviews were readily categorisable within the categories identified in the initial interviews.

- Beliefs in Category 01 (*Category 01 - Learning English is important as a means of communicating in academic and professional contexts*), in Group 2 about communication, were again identified as students stressed the need for communicating in the academic and professional contexts, access research sites, course books and documentation.
- Beliefs in Category 02 (*Category 02 - ESP teaching and learning are mechanical and repetitive*) in Group 3 about students' dissatisfaction with what was offered, were identified in the data analysed in this chapter.
- Beliefs in Category 05 (*Category 05 - Learning vocabulary in Computer Science is important*) in Group 1 about accumulation were identified in the data analysed in this chapter.
- Beliefs in Category 09 in Group 2 about communication (*Category 09 - Variety of teaching and learning skills, strategies and content should be offered*) indicating that students would like to have some variety in terms of skills (e.g. listening and speaking), strategies (e.g. learning from peers and native speakers) and also in

terms of content (e.g. grammar and English culture) were identified in the data analysed in this chapter.

- Beliefs in Category 11 (*Category 11 - Computers offer increased options for accessibility and communication*), in Group 1 about communication, were found in the second set of data signalizes, however, different from Chapter 7 (Section 6.2.3), the aspect of communication is more strengthened.

The findings here confirm the picture that came from the initial interviews and, again, supports the reliability of the initial findings.

3- Three additional categories of beliefs were identified

- Category 13 - Teaching materials need to be closely aligned to assessment demands (Extracts 7.06 and 7.07). This category can be seen to fit in Group 1 (Beliefs about language and language learning as accumulation). Students transferred to the design of the Portal the same assessment formats they were used to in the ESP classroom. The Portal was seen as enabling the reproduction of the same assessment format that they were used to in the ESP classroom and a means of directing their learning efforts towards getting higher grades.
- Category 14 - Computer technology allows a more social autonomy (Extracts 7.20 and 7.21). The new beliefs found and grouped in this category indicates students' views that computers can be used for helping and learning from each other, and that the learning environment being designed should support different needs and difficulties.
- Category 15 -Computers provide a familiar learning environment (Extracts 7.22). Students said that they believed that computers offered a less threatening learning environment since it is closer to what they were familiar with than the face to face classroom. This category can be seen to fit into Group 4 (Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers) since it is likely that students working with such an environment would feel more able to take control of some aspects of their own learning.

Although the second set of data provided new findings, they were broadly in line with the existing grouping as in Figure 7.1. This provides additional evidence which suggests that

carrying out this second study was useful in order to gain a better understanding of the categories found in the first study.

4- Some refinement to the understanding of the existing categories was possible in three of the four groups.

- Group 1 - Beliefs about language and language learning as accumulation.
 - The belief that grammar should be taught in a sequence *Category 06 (Category 06 - Grammar should be taught in a sequence)* links to the conception of sequencing which characterized beliefs in this group about accumulation. A belief which was not identified previously emerged in one of the workshops: ESP learners should have some knowledge of vocabulary in order to learn technical vocabulary (Extract 7.03) and so this belief was categorised here and the category was reworded to *Category 06 - Grammar and vocabulary should be taught in a sequence.*
 - Students expressed the belief that computers would be valuable for storing vocabulary or accessing computing terms which beliefs were very similar to those classified in *Category 10 (Category 10 - Computer resources are valuable for learning technical vocabulary)* in Chapter 6. During the workshops, however, the emphasis on learning vocabulary to function within the Computer Science area was lessened, with more emphasis on general vocabulary. In order to accommodate this new data, the category was reworded to *Category 10 - Computers are valuable for learning vocabulary.*
- Group 2: Beliefs about language and language learning as communication.
 - In the first workshop, students agreed about the importance of learning how to read in English and made clear that they needed to understand issues related to computing through the language and to use the language for something useful such as accessing course books and research sites. In order to accommodate this new data, the definition of *Category 07* was extended from *Category 07 Texts chosen for reading practice should be relevant to the students' interests* to *Category 07 - Greater stress should be placed on reading, and on the selection of texts for reading that are relevant to the students' interests.*
- Group 4: Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers.

- Autonomy can be seen here as an individual one and that could be thought as fitting with self-directed learning environments. These beliefs were categorised at *Category 12 - Computer technology allows students more autonomy*. A different aspect of autonomy to the one found in the initial interview was identified during the design of the Portal and these beliefs were classified as *Category 14 - Computer technology allow a more social autonomy*. As a result, the title of *Category 12* is reworded to emphasise the distinction between these two forms of autonomy and is now entitled *Category 12 - Computer technology allows students more individual autonomy*.

The findings here, again, support the usefulness of the second study by providing a refinement of our understanding of some categories to some degree. These refinements are also shown in Figure 7.1 below.

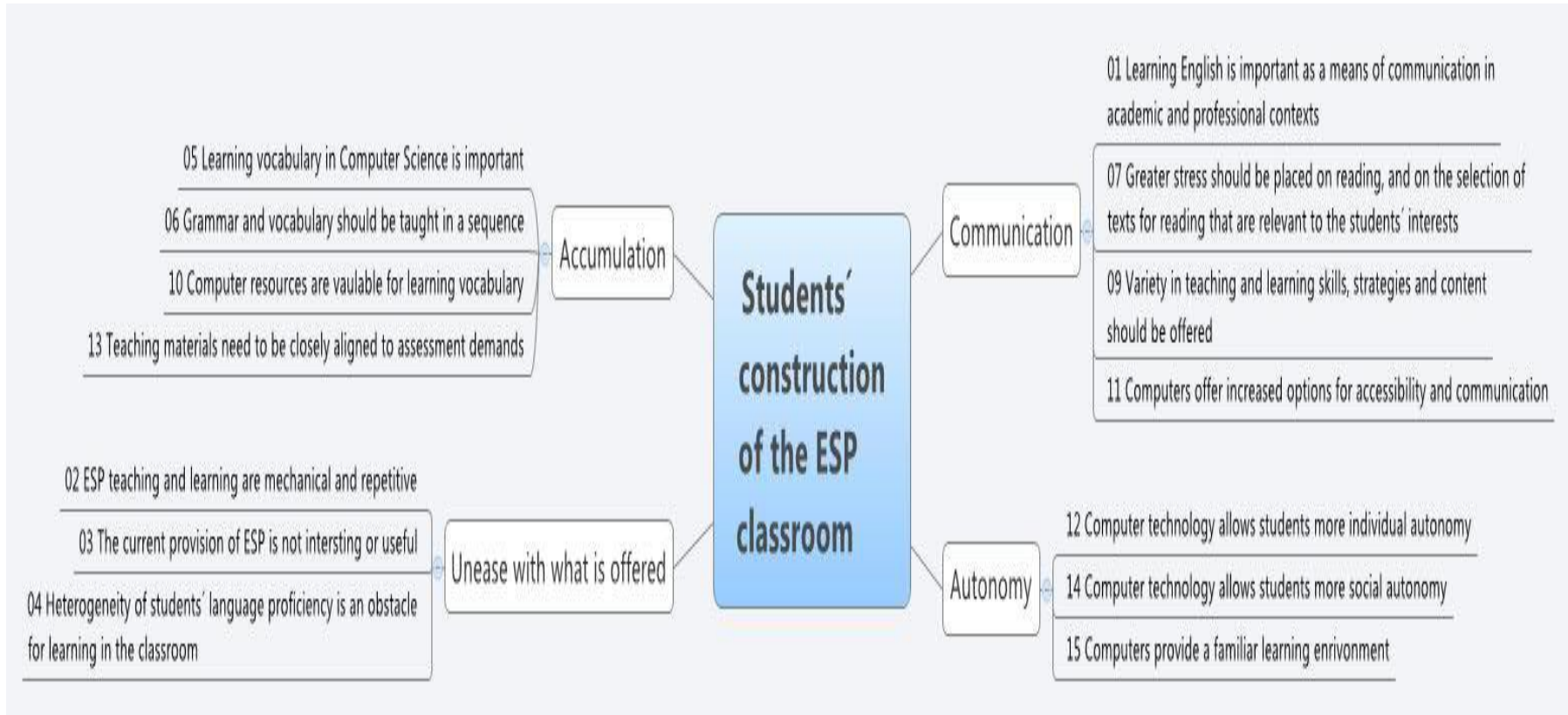


Figure 7.1 The final version of the students' construction of the ESP classroom

7.6 Summary

In this chapter, I presented the analysis of data gathered from recordings of students' participation in the workshops, their entries in an online diary and their final interviews in order to obtain a broader picture of the students' construction of the ESP classroom, and so to address the second research question.

A broader and more concrete picture of students' construction of the ESP classroom was identified since their involvement in the design process allowed the following to emerge:

- Some beliefs different categories identified in the first set of data did not emerge in the second set of data (i.e. Categories 03, 04 and 08). Many of these beliefs expressed some kind of critique (e.g. beliefs in Category 03) regarding the current ESP practice. One hypothesis raised for that to happen is the fact that their ESP teacher was part of the design team. On the other hand, students' participation seemed to have given them the opportunity to be less negative in their critique and more pro-active in their contributions to improve the current practice.
- Most of the beliefs identified in the first set of data were also identified in the second set of data (i.e. beliefs in Categories 01, 02, 09 and 11). This supports the reliability of the initial findings.
- Three new categories of beliefs were identified (Categories 13, 14, 15). These new findings are, to some extent, connected to the initial findings suggesting the students' participation allowed the researcher to gain a broader and more concrete view of their construction of the ESP classroom. More importantly, these new findings emerged from the students' own agenda.
- Some categories needed to pass through a process of refinement (Categories 05, 06, 07, 10 and 12). Again, this process of refinement led to a broader and more concrete view of their construction of the ESP classroom.

The chapter which follows discusses the findings from Chapters VI and VII and address the research questions posed in this thesis.

CHAPTER VIII

DISCUSSION

8.1 Introduction

The aim of this chapter is to answer the two research questions posed in Chapter V – Methodology. Research question 1 will be answered through a discussion of the findings presented in Chapters VI and VII in the light of the literature reviewed in Chapters II and III. Research question 2 will be answered through a discussion of the findings presented in Chapters VI and VII in the light of the literature reviewed in Chapter 4.

8.2 *The students' construction of the ESP classroom: Answering research question 1*

The first research question investigated here was:

- **How do students construct the ESP classroom, that is, ESP teaching and learning and ESP teaching and learning with technology?**

This question will be answered by describing the students' construction of the ESP classroom as it emerged from the data presented in Chapters VI and VII, and by relating it to the existing literature. First of all, however, I will summarize the findings from both chapters.

8.2.1 The findings

As presented in Chapter 6 and VII, students' beliefs were grouped into four themes. Each of these themes is summed up below.

Group 1: Beliefs about language and language learning as accumulation

Five categories of beliefs were grouped here:

- *Category 05 - Learning vocabulary in Computer Science is important.*
- *Category 06 - Grammar and vocabulary should be learned in a sequence.*
- *Category 08 - Greater stress should be placed on vocabulary.*
- *Category 10 - Computer resources are valuable for learning vocabulary.*
- *Category 13 - Teaching materials need to be closely aligned to assessment demands.*

Group 2: Beliefs about language and language learning as communication

Four categories of beliefs were grouped here:

- *Category 01 - Learning English is important as a means of communication in academic and professional contexts.*
- *Category 07 - Greater stress should be placed on reading and on the selection of texts for reading that are relevant to the students' interests.*
- *Category 09 - Variety in teaching and learning skill, strategies and content should be offered.*
- *Category 11 - Computers offer increased options for accessibility and communication.*

Group 3: Beliefs that what is offered in the ESP classroom is not really satisfactory

Three categories of beliefs were grouped here:

- *Category 02 - ESP teaching and learning are mechanical and repetitive.*
- *Category 03 - The current provision of ESP is not interesting or useful.*
- *Category 04 - Heterogeneity of student language proficiency is an obstacle for learning.*

Group 4: Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers

Three categories of beliefs were included here:

- *Category 12 - Computer technology allows students more individual autonomy.*
- *Category 14 - Computer technology allows students more social autonomy.*
- *Category 15 - Computers provide a familiar learning environment.*

8.2.2 Relating the literature and the findings

This section will link the literature and the data related to the two research areas being discussed: ESP (Chapter 2) and Beliefs about language and language learning (Chapter 3). Some information about the context of the research, described in Chapter V, will also be useful here. The main aims are (i) to discuss points of convergence and divergence found between the data and the literature and (ii) to explore the light each sheds on the other.

The mono-skill (reading) approach

As described in Chapter 2 (Section 2.3), Celani (2005) calls an ESP practice characterized by a mono-skill approach based on reading, the training of reading strategies, and a strong reliance on learners' first language as a means of instruction "a specifically Brazilian approach to ESP" (p.17).

This approach to ESP seems to characterize the classroom investigated here. This can be inferred from the module programme (Unioeste, 2003) which indicates that the module was designed to improve students' comprehension and interpretation of technical texts related to the area of computing (see Chapter 5, Section 5.2).

The teacher describes the approach to reading in the ESP classroom as grounded on genre analysis, on reading strategies and on technical vocabulary (Chapter 6, Section 6.2.1). However, the students describe the approaches to reading as experienced by them as principally based on the teaching of specific reading strategies which call their attention to vocabulary (e.g. pay attention to morphological features (prefixes and suffixes); pay attention to cognate words and key words) together with some attention to grammatical elements. The teaching of reading as described by the students seems to consist of the teaching of reading strategies by themselves and is not focused on reading "between the lines" (Scott, 2005) nor did it use the TAVI approach suggested by Johns and Davies (1983), that is, the text is not approached as a vehicle for information in which its communicative value is seen as central. The reading task can be described as being based on a view of texts as a linguistic object, or TALO. This seems not to meet the students' needs as discussed next in the discussion of the categories of beliefs grouped in Group 2.

Finally, much of what was said about ESP teaching and learning, more specifically about the reading approach, and the teaching of vocabulary and students' lack of interest as summed

up below, is mirrored in Holme and Chalauisaeng's (2006) study as presented in Chapter 2 (Table 2.4). This also supports the trustworthiness of the findings.

Vocabulary

In general, the learning of vocabulary is seen by students as an important element of their ESP classroom, though whether the emphasis should be on technical or non-technical, general vocabulary is an unresolved question. This echoes the problem highlighted by Tumolo (2007) who suggests that the teaching of technical or non-technical, general vocabulary is an unresolved question for ESP teachers.

Beliefs identified in Category 05 (*Category 05 - Learning vocabulary in Computer Science is important*) make explicit students' interests in learning both technical and non-technical, general vocabulary. The non-technical, general vocabulary refers to the general vocabulary which appears with high frequency within technical texts in the specific area of Computer Science (Dudley-Evans and St. John, 1998). In addition, students stress the important role played by conjunctions such as *if* and *while* in programming languages (Chapter 6, Extract 6.21). Not all students give equal importance to the learning of technical vocabulary, however. One of the beliefs which emerged is that the technical vocabulary is learned when in contact with specific disciplines (e.g. Computing I) as shown in Chapter 6, Extract 6.31.

When students think about computers for ESP learning, one commonly identified use of this resource is for the storing of vocabulary and as an aid in the learning of technical vocabulary (see beliefs in *Category 10 - Computer resources are valuable for learning vocabulary*). In Chapter 7, however, the students' beliefs in the value of using computers to learn vocabulary are seen to also cover the teaching of non-technical, general vocabulary, and they here give a more general interpretation to the idea of non-technical, general vocabulary than that found in the data in Chapter 6 (where non-technical, general vocabulary seems to refer to the general vocabulary which appears with high frequency within technical texts in the specific area of Computer Science). Indeed the students go as far as to suggest that the Portal might offer vocabulary that is not specific to the Computer Science area and might cover areas such as English for Tourism.

The teaching of non-technical, general vocabulary in this wider sense would potentially make the work of ESP teachers easier since most of them are not specialist in the technical

areas of Computer Science. It is often difficult to teach technical vocabulary to students who are novices in an area (such as the subjects of this research) where the area is characterized by fast developments leading to ever changing technical vocabularies. On the other hand, the learning of this kind of vocabulary is important as it demonstrates learners' membership within specific communities (Coxhead, 2013). What the data shows is that students' own perspectives also reflect these conflicting views regarding what vocabulary should be learned, and this reinforces the need to create a shared understanding between teachers and students of the role vocabulary instruction should play within the ESP area.

The students also believe that the idea of sequencing relates to vocabulary and argue that there should be a sequence in vocabulary learning, and in particular that non-technical, general vocabulary should be taught before the technical one. These beliefs are categorized in *Category 06 - Grammar and vocabulary should be learned in a sequence*.

Grammar

Another element raised by students is grammar. Holmes (2005) argues that the Brazilian ESP interest in teaching reading strategies as a form of reaction against the teaching of grammar led to the idea that the explicit teaching of grammar could be ignored. However, the teaching of grammar is central in the ESP module programme examined in this study: the module is specifically described as being about "the study of the main grammatical points which interfere in comprehension and interpretation of technical texts related to the area of computing" (Unioeste, 2003, p.1). This formulation seems to be close to Deyes (2005) who argues for a form of grammar instruction that would help learners "to find their way through discourse" (p.72).

On the other hand, students' beliefs categorized in *Category 06 (Category 06: Grammar learning should occur in a sequence)* express the idea that grammar should be learned in a sequence, and in a more structured way than presently found in their classroom in order to facilitate learning and to give students more sense of progression. However, this belief is not shared by all students (see Chapter 6, Extract 6.25 and 6.26).

Although ESP is about language *use* in a particular domain (Paltridge and Starfield (2013), a more traditional approach to language teaching can be identified in students' statements:

they seem to be asking for a more traditional form of grammar instruction with rules being presented in sequence in sentences or texts chosen to meet the purpose of explaining these rules. The long-life of traditional approaches to language teaching and learning, as discussed by Ur (2011) and Jin and Cortazzi (2011), is reflected in students' own views of language learning. Besides the sense of progression felt by students, it is not possible to ignore the fact that traditional approaches also give students some sense of security since they have a specific and clear set of 'content' to learn (i.e. a list of grammatical items) and to be assessed.

Assessment

During the students' involvement in design they expressed beliefs related to a view of learning as addressing assessment requirements. As these beliefs are an important aspect to be addressed, a new category of beliefs was created (*Category 13 – Teaching materials need to be closely aligned to assessment demands.*). These beliefs implicitly view progress in language learning as equivalent to improved test scores and, consequently, as an accumulative process. These beliefs, to some extent; are closer to the view of learning as reproducing described by Saljo (Saljo, 1979, cited by Marton et al, 1993). The students argued that both the content of the ESP classroom and of the Portal should be offered according to assessment requirements and the Portal should also offer students a space where they could obtain more grades without having to study too much for exams. These beliefs should be seen with their relation with the context, that is, as Benson and Lor (1999) comment beliefs "can be understood as cognitive resources on which students draw to make sense of and cope with specific content and contexts of learning" (p. 462).

Although as a result of their involvement in the design process the aims and structure of the course have become clear to the students, and they are no longer a vague abstraction, the assessment procedures posed by the context are defining what and how students believe they need to learn. This fits with the argument of Holme and Chalauisaeng (2006) that if the students' participation is not used to actually transform the course in accordance with the students' needs, then the students would continue to focus on the course assessment as a definition of what needs to be learned..

Communication

Paltridge and Starfield (2013) define ESP as “the teaching and learning of English as a second or foreign language where the goal of the learners is to use English in a particular domain” (p.2). Besides the interest in learning specific elements of the language (i.e. vocabulary and grammar), students also hold a number of beliefs which can be seen to relate to a view of language and language learning as communication and these have been grouped together in Group 2: Beliefs about language and language learning as communication. Beliefs in Category 01 (*Category 01: Learning English is important as a means of communication in academic or professional contexts*) express students’ interest in learning English to meet both immediate (academic) and future (professional) needs within the Computer Science area.

With these communicative needs in mind, the students argue that they need to use English for accessing research sites and documentation that they perceive as required by their area of interest. These beliefs were put together in Category 07 (*Category 07: Texts chosen for reading practice should be relevant to the students’ interests*). Students’ beliefs within this category seem to be similar to the view of text as a vehicle for information (Johns and Davies, 1983) and differ from the ESP practice they describe themselves as experiencing in which superficial aspects of the text are addressed. During the design sessions students argued that reading would be the most important skill to be learned to meet academic needs. As such, in order to accommodate this belief, Category 07 was reworded to *Category 07 – Greater stress should be placed on reading and on the selection of texts for reading that are relevant to the students’ interests*.

Although the teacher mentions the use of a genre analysis approach, this is not identified in students’ interviews or in discussion during their participation in the design sessions. The students believed that they needed to read course books, documentation and presentation slides in order to meet both their academic and professional needs. These needs could be met by adopting an approach to genre such as that discussed in Chapter 2 (Section 2.4.3), which would help the teacher, according to Hyland (2007), to be “more sensitive to the specific communicative needs of their students” (p.151).

Issues on monotony and variety related to a mono-skill approach were already posed by Hutchinson and Waters (1987). Here, the mono-skill approaches used is described by students as “monotonous” (Extract 7.15). Consequently, students express a desire for more variety as in Category 09 (*Category 09 - Variety in teaching and learning skill, strategies*

and content should be offered.). Students express beliefs that they would need to learn other skills (e.g. listening and speaking) and other learning strategies (e.g. learn from interacting with peers). In terms of content, however, students initially suggested that music should be offered. During the design sessions, the variety of content gained more elements: students shared the beliefs that additional texts, related to the topic in discussion in the classroom, could be offered as well as grammar explanations and exercises and English culture. This variety asked for by students, however, does not match with the ESP modules in general and the one investigated here (see Chapter V, Section 5.2). ESP modules in general are usually short and teachers need to be highly selective in the content they teach (Holmes, 2005). The ESP module investigated here has the specific aim of approaching the grammatical items which might interfere in students' comprehension and interpretation of technical texts (Unioeste, 2003). The Freirian concept of *Conscientização*, as proposed by Scott (1991) as a role expected from Brazilian ESP students seems not to be reached in the context investigated here. This concept, based on ensuring students understand why they are learning a specific skill as well as the way they are learning, that is which strategies are effective, etc., would be achieved by making students verbalize their beliefs and confront them in relation to the context in which they manifest.

This mismatch is also clear in students' desire to move from ESP to a more General English course that is suggested by beliefs in Category 09 above, and also those in Category 11 (*Category 11: Computers offer increased options for accessibility and communication*). In the interviews students thought about computers as a form of accessing material they need to learn and as a means of interaction with others in a real context of language use (e.g. attending lectures) within their area of interest. During the design sessions students expanded this description to include the idea of accessing and communicating with native speakers of English, not necessarily just members of Computer Science community.

Possibly as a reflection of the beliefs shared by students about ESP teaching and learning discussed above, some of the beliefs found in Group 2 also express the idea that the ESP classroom is not really satisfactory as do the beliefs in Group 3 (Group 3 - Beliefs that what is on offer in the ESP classroom is not really satisfactory). The beliefs in Category 02 (*Category 02: ESP teaching and learning are mechanical and repetitive*) suggest that the ESP practice is seen as reading and then answering questions about topics students already know. In addition, reading activities are seen as simple and, thus, not meeting the needs of

students with higher proficiency levels. Students believe that this ESP practice lacks any value or interest (*Category 03: The current ESP provision is not interesting or useful*).

The lack of interest demonstrated by students (Extract 6.13), and acknowledged by the teacher (Extract 6.06) is also influenced by a practice based on a view of the classroom as homogenous in a classroom which is inherently heterogeneous. From the students' perspective, a more homogeneous classroom (in terms of language skills) would constitute an environment that is more likely to enhance their learning (*Category 04: Heterogeneity of student language proficiency is an obstacle for learning*). The students believe that the teacher only teaches the basics of language and that this is because there is a great variety of language needs in the classroom. As a consequence, the higher proficient students express their lack of interest in learning ESP because they have to wait for their colleagues with lower proficiency levels.

Autonomy

As briefly discussed in Chapter 3 (Section 3.3), autonomy is defined by Benson and Lor (1998) as being when students have control over their learning and encompasses "active involvement in the learning process, responsibility for its content, control over factors such as time, frequency, pace, settings and methods of learning, and critical awareness of purposes and goals" (p.8). Borg and Al-Busaid (2012) argue that autonomy presents itself as a range of interrelated beliefs in Category 12 (*Category 12 - Computer technology allows students more autonomy*) and these were put together in Group 4 (Group 4 - Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers). These are about students' desire for more autonomy. These beliefs within Category 12 were divided to accommodate two different aspects of autonomy which emerged during the design sessions. Category 12 was reworded to *Computer technology allows students more individual autonomy* which covered beliefs where the students want to gain more control (i.e. learn by themselves, initiate interaction) and learn at their own pace and not at the pace of others in their ESP course (which is often described as being designed to meet the needs of students with low levels of language proficiency). In these beliefs computers were thought of as a means of supporting an individualistic form of autonomy. During the design sessions beliefs related to another aspect of autonomy were identified, and these were

categorized in a new category of beliefs in which students expressed the belief that the Portal could be used as a space where learners can learn from each other and help each other - Category 14 (*Category 14 – Computer technology allows a more social autonomy*) Borg and Al-Busaid (2012) suggest that teachers of English as a foreign language are not very aware of the social dimension of autonomy, and so the fact that students' participation in the design sessions seemed to have made this social dimension of autonomy emerge naturally, is particularly interesting.

In general, the findings discussed in this section are similar to the findings of Home and Chalauisaeng (2006) who also use a participative approach in order to involve students in assessing their own learning problems and suggesting possible solutions. As presented in Chapter 2 (Section 2.5.2), students in the study Home and Chalauisaeng (2006) also shared a lack of interest in the reading practice they were expected to do. The causes for the lack of interest indicated by students were, among others, inadequate practice, dislike of reading, and lack of background knowledge. These led students to a lack of confidence, little motivation for reading, negative attitudes to reading English, limited reading ability, and boredom. The solutions suggested were more training on ways of reading, more practice, more interesting learning activities, and more relevant and practical reading activities.

8.2.3 The nature of students' beliefs

The theoretical distinction between qualitative and quantitative conceptions of language and language learning (Benson and Lor, 1999) was used to help to describe the data obtained in the empirical study. Next, I will examine the light that this theoretical distinction throws on the data from this study.

The analytical framework proposed by Benson and Lor (1999) was useful in describing some of the main distinctions found in the data.

Group 1 (*Group 1: Beliefs about language and language learning as accumulation*) contains beliefs in Categories 05 (*Category 05 - Learning vocabulary in Computer Science is important*), 08 (*Category 08 - Greater Stress should be placed on vocabulary*) and 10 (*Category 10 - Computer resources are valuable for learning vocabulary*) that are about vocabulary learning, and the fact that this is referred to in the three contexts investigated –

ESP teaching, ESP learning and the use of technology within this context – suggests that the students see this as a particularly important aspect of their language learning. In terms of the framework of Benson and Lor this evaluation of the importance of vocabulary might be seen as being conditioned by a quantitative view of language as “a collection of things to be learned” and the corresponding view of language learning as a process of memorizing its component parts by collecting, absorbing and assimilating these things. The beliefs in this Group are similar to those grouped by Benson and Lor (1999) as being conditioned by a quantitative view of language in their study where they stress that “[y]ou have to build a good foundation” and to those beliefs about learning more generally described by Marton et al (1993) as “learning as increasing one’s knowledge”.

The idea of accumulation also encompassed beliefs categorised in Categories 06 (*Category 06 - Grammar and vocabulary should be learned in a sequence*) and 13 (*Category 13 - Teaching materials need to be closely aligned to assessment demands*). Benson and Lor’s (1999) notion of functionality allows us to describe these beliefs grounded in quantitative conceptions of language and language learning as functional within the students’ learning context, one they describe in terms which suggest that it is grounded on quantitative conceptions. However, quantitative conceptions can support different practice which may be differently evaluated by the teacher and the students, for instance, the teacher liked the students emphasised vocabulary teaching and they also expressed the belief that vocabulary learning was important, however, students also expressed an interest in learning grammar in a sequence and that was not provided.

Group 2 (*Group 2: Beliefs about language and language learning as communication*) contains beliefs in Category 01 (*Category 01 - Learning English is important as a means of communication in academic and professional contexts*), 07 (*Category 07 - Greater stress should be placed on reading and on the selection of texts for reading that are relevant to the students’ interests*), 09 (*Category 09 - Variety in teaching and learning skills, strategies and content should be offered*), and 11 (*Category 11 - Computers offer increased options for accessibility and communication*) are about the various forms of interaction students feel they need. In terms of Benson and Lor’s (1999) analytical framework these beliefs can be seen as conditioned by qualitative conceptions of language and language learning, that is, a view of language as “an environment to which the learner needs to be responsive in order to

learn”, and the corresponding view of language learning as a process of absorbing the language in its natural context of use.

Beliefs in Category 09 can be seen as the ‘how’ aspect, or how students would like to learn the language to meet their communicative needs. In this sense they are similar to the belief described in Benson and Lor’s papers (1998, 1999): “you have to expose yourself to the language”. Beliefs in Category 07 are mainly about ‘understanding’ and are closely related to the qualitative conception of learning described by Marton et al (1997) where the focus is on ‘the signified’ or on what the learning material refers to.

These beliefs which are conditioned by qualitative conceptions may well be dysfunctional in the students’ classroom context, a context which their description suggests is mainly grounded on quantitative conceptions.

The concepts of qualitative and quantitative conceptions are less useful in considering beliefs in Group 3 (*Group 3: Beliefs that what is offered in the ESP classroom is not really satisfactory*) and 4 (*Group 4: Beliefs that a more autonomous approach to ESP learning might be supported by the use of computers*).

Beliefs in Group 3 simply describe the experienced ESP practice and, perhaps, it is simply not useful to relate them directly to ideas about qualitative or quantitative conceptions. However, the students’ expression of these beliefs, sometimes presents ideas which could be interpreted as showing the influence of either qualitative or quantitative conceptions..

As for beliefs in Group 4, the distinction between qualitative and quantitative conceptions did not seem applicable to the specific beliefs about autonomy identified in this study. Some authors (Benson and Lor, 1998; Wenden, 1998) tend to make a link between conceptions and beliefs and autonomous behaviour, Benson and Lor agree that there is not a solid link between autonomy and either qualitative or quantitative conceptions, though they “broadly conclude that qualitative conceptions are more congruent with the idea of autonomous learning than quantitative conceptions” (p.57).

The reliance in this study on Benson and Lor’s analytical framework may have led to some other important aspects of beliefs not being pursued sufficiently (e.g. the developmental aspect). The use of this static distinction may also have limited the possibilities for giving an account of the contextual characteristics of beliefs and what make them unique.

The interest of the present research was not only on discriminating beliefs as conditioned by this or that conception, but rather to gain a broader view of these beliefs, and importantly to acknowledge that this broader understanding is best reached by involving learners in making explicit and confronting these beliefs within their specific context. How this was achieved in discussed next.

8.3 The value of participative design: Answering research question 2

The second research question investigated here was:

- **To what extent does students' involvement in the process of designing the computer technology for ESP bring to the light different elements of this 'construction'?**

This question will be answered by discussing the different elements of students' construction that were brought to the light during the students' involvement in the design process.

As discussed in Chapter 4 (Section 4.4), students' involvement in the design process may to create the necessary space where beliefs about the ESP classroom can be made explicit and confronted and, consequently, provide the researcher with a better insight on these beliefs. In this study the use of the PD approach did indeed shed some additional light on the students' construction of the ESP classroom as it made issues such as ambiguity and heterogeneity emerge (which are issues that Muller, 2002 suggests might emerge in this process).

The data gathered from the initial interviews provided a somewhat abstract picture of students' construction of the ESP classroom. It provided a categorisation of beliefs which I was able to interpret to some degree in terms of conceptions which conditioned these beliefs. Observing students' participation in the design sessions made it possible to see these rather abstract formulations of beliefs articulated as they were employed in a real world design context, and as a consequence, it was possible to gain a more rounded and detailed picture of this construction.

The PD approach, according to Spinuzzi (2005), is also about designing systems to *fit into* the existing web of tacit knowledge, workflow, and work tools, rather than ignoring them. This emphasis means that the impact of the researcher's agenda has to be minimized. As discussed in Chapter V Methodology (Section 5.5.2) only the two initial PD sessions were planned. This does not mean that there was no agenda impacting on the process after this, but rather, this means that different agendas were allowed to emerge and that allowed some new elements to come to the fore.

The PD approach allowed the participants to face each other's beliefs and that made it possible for the construction of the ESP classroom to emerge with its complexities and conflicts which had been to some extent so far been ignored or taken for granted. For instance during the PD practice the Software Engineering teacher mentioned that reading in English was not required by teachers from other modules in the Computer Science course (W1_p.9), so revealing an implicit fact which had not previously been acknowledged. This fact, which was not mentioned by the students in the initial interviews, might be seen as one of the causes for the lack of students' motivation to learn, as found in beliefs expressed in Chapter 6 (Extract 6.06) and in beliefs in Category 03 (*Category 03 - The current provision of ESP is not interesting or useful*) see Extract 6.13. An important implication from this is that the participatory practice needs to be extended to other levels of the course and reach teachers from specific disciplines and course coordinators.

The use of Participatory Design threw additional light on the students' construction of the ESP classroom but there were occasions where there are indications that it actually began to change the construction. This makes the interpretation task difficult as I am not always able to clearly distinguish the two cases. For instance, where a student says they have changed their mind (Extract 7.23), it is possible to do this, and where an account of a belief is totally consistent with the previous account it is possible to be confident that it has not changed (as in *Category 02 - ESP teaching and learning is mechanical and repetitive*). Moreover on theoretical grounds (e.g. Barcelos and Kalaja, 2011) I would not expect the construction to be a rigid and fixed element anyway, I would expect it to be flexible and evolving. So I chose to interpret new information in terms of the light it throws on the students' construction of the ESP classroom rather than discussing possible developmental effects.

CHAPTER IX

CONCLUSIONS AND IMPLICATIONS

9.1 Introduction

The investigation undertaken in this thesis set out to address two research questions:

- How do students construct the ESP classroom, that is, ESP teaching and learning and ESP teaching and learning with technology?
- To what extent does students' involvement in the process of designing the computer technology for ESP bring to the light different elements of this 'construction'?

The researcher is an ESP teacher and these questions arose initially from reflections on her practice and her attempts to construct an ESP practice that is suited to the teachers *and* students involved, and to use the available computer technology to support this practice. The importance of these questions is supported by the fact that ESP practice has a lot to gain from involving students in *reflecting about* and *confronting* their view of their own learning needs.

The researcher invited the ESP teacher, Computer Science students, and the Software Engineering teacher to work together to design a Web Portal to support ESP learning. The main argument throughout this thesis is that this design experience allows teachers and students to gain a broader understanding of the ESP classroom which is needed in order to better integrate the technology within this context.

This chapter seeks to draw some wider conclusions from the study. In addition, there will be some reflection on the methodological decisions made by the researcher when conducting the study. Finally, the implications of this study will be presented, along with recommendations for further studies.

9.2 Students' construction of the ESP classroom

With regard to the first research question, the discussion in the previous chapter attempted to shed some light on how this particular group of students constructs their ESP classroom. After analyzing the students' statements, gathered from interviews, about the teaching and learning of ESP and the use of technology in this area, we identified twelve categories of beliefs which make up their initial construction of the ESP classroom.

Benson and Lor's (1999) account of qualitative and quantitative conceptions of language and of language learning were found to be useful in interpreting the beliefs in Groups 1 and 2. The beliefs in Group 1 could be seen as conditioned by quantitative conceptions, whereas those in Group 2 could be seen as conditioned by qualitative conceptions. Beliefs about the learning context (Group 3) and about self (Group 4) are not specifically focused on language and language learning, and the distinction between quantitative and qualitative conceptions of language had less direct application to understanding these beliefs.

To some extent, this study set out from the position that a contextual approach (Barcelos and Kalaja, 2011) could be of value to illustrate the ESP practice investigated here. The analysis identified some beliefs expressed by the students which were in conflict with the perspectives of the ESP teacher. These show conflicts between the ESP teacher and the students both in terms of 'what' and 'how' to learn in the ESP classroom. For instance, the teacher and the students do not share common views on how a text should be approached in the classroom: while the teacher uses texts thought to be 'already known' by the students to teach the language, the students want to read topics which relate to their own interests (Section 6.2.1, 6.2.2 and 8.2.2). A similar conflict emerges when technology is proposed to support the ESP practice. Whereas the teacher concentrates on the use of technology as an extension of the current practice based mainly on vocabulary teaching, the students regard it as a means of enhancing their communicative skills (Section 6.2.3 and 8.2.2).

It may be practical for the teacher, and sometimes the only option, to adopt a general pragmatic ESP approach, that is, to transmit to the learners a particular set of language skills which are required for the external jobs market, and then impose it on the students as if it was a true reflection of their needs. However, the recurrent lack of commitment by the students to their ESP learning suggests that this approach does not work. The students

investigated here clearly make an important distinction between the importance of English language learning and the ineffectiveness of ESP teaching.

The analysis also reveals conflicts between the beliefs expressed by the students themselves (e.g. Sections 6.2.2). Although conflicts and contradictions emerge, the practical value of this research lies not in understanding the way students construct the ESP classroom in itself, but in understanding the students' construction so as to be able to improve the ESP teaching and the learning processes. It should be recognized that the students' construction is situated and socially constructed. It is "situated" because it represents a construction of a particular group, within a particular institution, at a particular moment in time. It is social because it is made up of multiple voices which are constantly supporting and contradicting each other. ESP, conceived as the teaching of a specific language, genre or register, is far removed from what students conceive to be foreign language learning. A number of changes in the ESP classroom can be readily implemented:

- The different constructions of the ESP classroom by the ESP teacher and by the students could be explicitly shared between them. This would minimize the grounds for conflicts and tensions between. The teachers should take into account the mix of qualitative and quantitative conceptions of language and language learning expressed by the students, and create spaces for this in the ESP practice. The students, on the other hand, need to develop a broader view of the classroom and, thus, understand what it is possible to learn in a ninety-hour ESP module in a classroom with forty students.
- The Course supervisor and teachers from computing-related modules (e.g. Operating Systems, Software Engineering) should also be aware of these constructions and of their own impact on these constructions. For instance, one of the beliefs expressed in the interviews is that the current ESP practice is not useful (Chapter 6, Section 6.2.1). Although the ESP module is only offered to first year students, there is a belief that it will be useful in the third or fourth year of their graduation course. The same belief emerges when the students are asked about what changes could be implemented (Section 6.2.2) and how technology could be used to support ESP teaching and learning (Section 6.2.3). They suggest that the ESP practice should meet the needs they anticipate having in the future as well as those which are external to their course (e.g. accessing non-

technical texts on the Internet, taking part in conferences, online chatting). Thus, the distance between the modules (i.e. the ESP and the computing-related modules) might lead to misunderstanding regarding, for example, the language knowledge students are expected to have when they reach the third/fourth years and the technical knowledge ESP teachers should have and provide. A practical step here would be to shorten this distance and create a shared practice in which one module gives support to the other.

Regarding the second research question, what emerges is that the involvement of the students in the design process did bring to light aspects of their beliefs which had not previously been explicit. The initial interview process itself did not trigger (or perhaps even inhibited) the expression of some important aspects of the students' experience of the ESP classroom which later emerged during the design process. These included assessment and its role in motivating the students to learn.

9.3 Reflections on the methodology

This section looks back at some of the methodological decisions made in the study, and asks whether they worked or not in the research design employed. Several different approaches that could have been used are discussed.

9.3.1 Choosing methods for data gathering

Three methods of data collection were used: semi-structured interviews, audio recordings of students' participation in the design workshops and an online diary. These reasonably productive methods were thought to be suitable for obtaining sufficient data even from a small number of participants (10 students) as was the case here.

The semi-structured interviews were regarded as the most useful method to provide data to address the first research question, although after looking back on the whole process, a number of concerns arise about this method. As mentioned in Chapter V, the questions were mainly designed to give access to how students construct the ESP classroom although it was accepted that the interviews would only give a partial view of the students' construction. The questions asked included questions about the level of the student's language proficiency, their previous experiences with language learning, their reasons for studying

Computer Science, and their experiences of design. This data could have been collected instead by using an initial questionnaire, which might have been less time-consuming and provided more standardized data. The analytical process also showed that some issues were not pursued with sufficient attention during the interviews and, as a result, some aspects of the data remained unclear. For example, on some occasions, the researcher was not in a position to be able to understand the nature of the students' underlying conceptions of language and language learning because they had not been prompted to give sufficient detail during the interview.

As mentioned in Chapter 4, recordings of the discussions during the design process and online diaries were used to allow the researcher to examine the relationship between the students' beliefs and their design of technology.

The researcher thought that the fact that the participants were familiar with the technology would mean that the students would be willing to use an online diary. However, the students' use of on-line diaries did not produce significant amounts of data. One of the reasons given by some students for not making diary entries was that, although they were keen users of technology, they simply did not like writing. Looking back now it would seem that online diaries were not of any great value in this study. Recordings of the discussions during the design workshops, on the other hand, proved to be a very rich source of data.

One important limitation of the study was the fact that the design process was being used both for design and simultaneously being used to provide data for a research study and this led to some conflicts. For example the need to collect all the necessary data within the time allocated for the design process itself conflicted with the natural time scale of the design process. Had time not been an important issue, the adoption of an Action Research approach (rather than the approach adopted here) might well have been of greater value. The idea of working in cycles, as proposed in the Action Research approach, that is, planning, acting, observing, reflecting, reviewing, and then planning again, and so on, would have produced additional insights through the implementation of the designs and, comparing them with classroom practice.

Another important limitation of the study was the fact that the design process was not a part of the normal ESP classroom practice and involved only a relatively small number of volunteer ESP students.

9.3.2 The coding process

As described in the Methodology Section (Chapter V), the categories used in the analysis were derived in a bottom-up way, that is, from an examination of the data rather than from an a priori analysis based on concepts derived from the literature. It was thought that though this would involve more work in the early stages of the study that it would make the later analysis easier. However, there was no opportunity to test and refine the data collection methods to clarify what additional data might have been of value in supporting this bottom-up derivation of the analytical categories and thus the later analysis was more labour intensive than had been anticipated.

9.3.3 The analytical framework

The discussion in the previous chapter examined the analytical framework proposed by Benson and Lor (1999). The distinction between conceptions, beliefs and approaches offered, initially, a structure to investigate the different elements which form a part of the students' construction of the ESP classroom. It was also clear that some of the students' beliefs about language and language learning were conditioned by quantitative and others by qualitative conceptions of language and language learning. Involving students in the design process led us to gain some greater understanding on how students' beliefs and conceptions were contextualized in approaches to teaching and learning in the Portal. However, this analytical framework relied heavily on the dichotomy between qualitative and quantitative conceptions, and in retrospect greater attention should have been paid to the developmental aspect of beliefs rather than just to these rather static representations.

9.3.4 Ethical Issues

At the beginning of the research, an Ethics Form was completed and submitted to the Institute of Education for approval, and the researcher sought to comply with the ethical guidelines drawn up by the British Educational Research Association. Special stress was laid on the responsibility of the researcher to the participants. Although care was taken to preserve their anonymity, the context itself did not allow this to be fully ensured since the participants belonged to a small community, and there was only one group of students

attending the ESP module in the Computer Science course. Although the research was not intrusive enough for the possible identification of participants to be a problem, it may have affected the students' willingness to comment on the work of the teacher.

Another guideline was related to the relationship with the host institution, which did not have clear procedures for addressing ethical issues in research in education when this study was conducted and thus the use of these guidelines was an important contribution to the researcher's practice and to the research context. Due to increasing internal and external demands such as that produced by this study the host institution has now established its own Ethical Committee and Code of Practice.

At the time that ethical approval was sought for this study (2003), the ethical guidelines adopted by BERA (dated 1992) made no specific reference to possible dilemmas arising from adopting the joint roles of researcher and teacher; indeed the guidelines are based on an assumption that these two roles are completely distinct. However, the revised BERA guidelines of 2004 do respond to situations in which these two roles might be adopted by the same person, and make specific reference to this issue. At the outset of the research the possible dilemmas arising from adopting the joint roles of researcher and teacher were taken into account and are discussed in the Methodology section of the thesis (Chapter V). These conflicting roles could lead to problems such as the temptation of being overcritical or else of overlooking recordings or failing to analyse data that might be significant. For instance, in the role of teacher one might be very critical about the design, whereas in the role of researcher one might simply want to document design decisions. During the whole design process, there was doubt as to whether the teacher-researcher should put pressure on the students to engage in discussion or intervene in the discussion, and to what extent the teacher-researcher could do this without distorting the research data.

The ethical issues anticipated and described in the Methodology chapter (Section 5.7) include the objective sharing the preliminary results with the students, but it was not possible to put this into. This was because the researcher took much longer than expected to carry out the analysis, by which time the participants had already left the university. However, all the participants had been notified of different ways of contacting the researcher (i.e. email and telephone) so that they could obtain information about the research if they wished to, although this offer was never taken up.

9.4 Suggestions for further research

It is worth investigating whether the system proposed by the students in this study could be adapted to the ESP learning tasks of the learners. The study here is based on the design process, and further work is needed to investigate how the design might influence the way it is used in practice. For example, students have added some general content to the portal. What would be the impact on a ninety-hour ESP practice session of including some general content in the curriculum, as suggested by the students? The students have also defined a more participatory role for themselves in which they support one another in their learning; however, to what extent will their institution be willing to support that role and for how long?

The issue of learner autonomy has increasingly come to the fore in the recent literature on language learning (Benson, 2001, 2009, 2010; Lamb and Reinders, 2008). Indeed, the journal *Language Learning and Technology* recently produced a special issue on autonomy and new learning environments (2011, Volume 15 Number 3). The data here show that the students designed a learning environment to support both individual and social autonomy. It would be of value to explore to what extent this second dimension of autonomy, the social one, could be useful for understanding technological learning environments.

Although the key role of ESP students in classroom decision-making is fully recognised, the small number of students who agreed to participate in the study suggests that many of them did not take on this role. Further investigation needs to be carried out to address issues such as how to encourage the greater involvement of ESP students in decision-making regarding ESP practice, either with or without the support of technology.

9.5 Implications of the research findings

Going beyond answering the research questions, one significant additional implication of this study is that students should be involved in the design of the technology that will be used in the classroom.

First of all, ESP teaching and learning (and the use of technology to support ESP teaching and learning) must address the full range of conceptions of learning – by adopting both quantitative and qualitative approaches - and not be restricted to either structure-oriented or

communicative-oriented practices. The data suggests that students do not see language in one particular way but in a combination of ways and this was apparent in the system they designed. For instance, the students added a Forum as a tool for supporting each other when they had difficulties with grammar or vocabulary, as well as for establishing additional means of communication among themselves, with the teacher, and between themselves and the outside world (Section 7.2.1).

Secondly, ESP can be made into a more valuable and stimulating subject by involving the students in the design of the teaching. This more contextual approach can help to address the issue of marginalisation which is known to be a general issue of concern and was clearly observed in the attitudes of students in this study as well. The data shows that students became more interested in ESP as a result of this design process since it meant they could design a learning environment closer to their own view of how a foreign language should be taught and learned. This also applied to the teaching and learning of General English in which different (non-technical) themes of interest are integrated as well as different language skills such as listening and speaking.

Thirdly, technology used in the ESP classroom can be effectively implemented by involving students in the design of the required technological systems. The question of student participation raises key questions about the integration of technology into the classroom and it can be argued that they are in position to reflect on whether or how this integration, and all the investment which comes with it..

The students are also in a position where they can design a learning environment which is closer to their own view of learning needs. In the Portal designed (as described in Chapter 7), the students added both technical and non-technical content of their own interest and added additional reading and grammar activities, as well as different means of interaction. However, while teachers or materials designers may not have a complete view of students' needs, it cannot be assumed that students themselves have a complete view either. For this reason, participation must include all the actors involved in the design of educational systems, that is, technologists, teachers and students. Sometimes what the students regard as a need may correspond to a need as defined by the external context itself. For instance, the professional market might require students to have access to and read technical papers and the students themselves might recognise this need. However, the decision to incorporate this

within the classroom by involving the students might help them to feel that they are part of a shared classroom practice rather than being subjected to something imposed on them.

Finally, involving students in the design of systems is an effective way of encouraging them to reflect on their learning, and thus become better learners. The data also supported the idea that students' participation allowed the different elements which governed their construction of the classroom to become better organized and be made explicit. As a result, the complexities involved in teaching and learning became more apparent and this caused some changes in their attitude to the classroom. This is clear, for example, in the move from their initial view that heterogeneity in terms of proficiency was an obstacle to them and prevented them from learning to the design of a learning environment where students with different levels of language proficiency could support and learn from each other.

To conclude, it may be possible to allow students to participate in design when a more local approach to understanding specific teaching and learning practices is needed, and when the learning context allows this. In other words, it can be achieved when the design of technology to support learning is seen not as a process to be planned and carried out *by* teachers or material designers *on* students but rather as continuously planned and executed *with* students as the course proceeds.

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APPENDICES

Appendix 1 – Consent Forms

Consent Form – Interviews

I have been asked to take part in a research study about the design of computer-based tasks for the ESP¹³ classes. The study will be conducted by the researcher, Delfina Cristina Paizan, who is an English teacher at the Western Paraná State University, Foz do Iguacu, Paraná – Brazil. This research will be conducted as a thesis component of Ms Paizan's degree requirements.

The following points have been explained to me:

- 1) The purpose of this research is to investigate the design of computer-based ESP material in collaboration with teachers, students and technologists.
- 2) I agree to participate both in the design of ESP tasks and in interviews carried out by the researcher.
- 3) I am aware that the interviews will be tape recorded only to help the researcher remember what was said.
- 4) My participation is entirely voluntary: I can leave the study at any time and I will not suffer any negative consequences.
- 5) I agree that any information obtained from this research may be used in the researcher's thesis, and published later.
- 6) My privacy will be protected and my name will not be used in any sort of report that is published. My name will be converted to a pseudonym when the researcher stores and publishes the data.
- 7) All the precautions will be taken to ensure confidentiality.
- 8) All research data will be kept within the responsibility of the researcher, and will be destroyed five years after the publication of the thesis.
- 9) The researcher does not foresee any risks to me for participating in this study.
- 10) I will have the opportunity to access the preliminary results of the study just after the period of participation and the end results after the thesis publication.
- 11) I have been given the opportunity to ask any questions I wish regarding this research. If I have additional questions about the research, I may contact Delfina Cristina Paizan, at **(45) 572-5065** or **dpaizan@yahoo.co.uk**.

Participant's Name

Participant's Signature

Date

¹³ English for Specific Purposes

Consent Form – online diary

I have been asked to take part in a research study about the design of computer-based tasks for the ESP¹⁴ classes. The study will be conducted by the researcher, Delfina Cristina Paizan, who is an English teacher at the Western Paraná State University, Foz do Iguaçu, Paraná – Brazil. This research will be conducted as a thesis component of Ms Paizan's degree requirements.

The following points have been explained to me:

- 01) The purpose of this research is to investigate the design of computer-based ESP material with the collaboration of teachers, students and technologists.
- 02) I agree to participate in the design of the computer-based tasks and to keep daily entries about the design process in an online diary.
- 03) My participation is entirely voluntary: I can leave the study at any time and I will not suffer any negative consequences.
- 04) I am aware that my diary entries will be accessed by the researcher, and that she will use them in her research.
- 05) I agree that any information obtained from this research may be used in the researcher's thesis, and published later.
- 06) My privacy will be protected and my name will not be used in any sort of report that is published. My name will be converted to a pseudonym when the researcher stores and publishes the data.
- 07) All the precautions will be taken to ensure confidentiality. However, I understand that online information is subject to confidentiality risk.
- 08) All research data will be kept within the responsibility of the researcher, and will be destroyed five years after the publication of the thesis.
- 09) The researcher does not foresee any risks to me for participating in this study.
- 10) I will have the opportunity to access the preliminary results of the study just after the period of participation and the end results after the thesis publication.
- 11) I have been given the opportunity to ask any questions I wish regarding this research. If I have additional questions about the research, I may contact Delfina Cristina Paizan, at **(45) 572-5065** or **dpaizan@yahoo.co.uk**.

Participant's Name

Participant's Signature

Date

¹⁴ English for Specific Purposes

Consent Form –Design Sessions

I have been asked to take part in a research study about the design of computer-based tasks for the ESP¹⁵ classes. The study will be conducted by the researcher, Delfina Cristina Paizan, who is an English teacher at the Western Paraná State University, Foz do Iguaçu, Paraná – Brazil. This research will be conducted as a thesis component of Ms Paizan's degree requirements.

The following points have been explained to me:

- 01) The purpose of this research is to investigate the design of computer-based ESP material with the collaboration of teachers, students and technologists.
- 02) I agree to participate, during four months, both in the design of ESP tasks and in meetings with the design team.
- 03) I am aware that the researcher is part of the design team and will also participate as an observer during the meetings also with the purpose of collecting data for her thesis.
- 04) I know that the researcher may tape record these meetings and that the records will be used only to help the researcher in her thesis.
- 05) My participation is entirely voluntary: I can leave the study at any time and I will not suffer any negative consequences.
- 06) I agree that any information obtained from this research may be used in the researcher's thesis, and be published later.
- 07) My privacy will be protected and my name will not be used in any sort of report that is published. My name will be converted to a pseudonym when the researcher stores and publishes the data.
- 01) All the precautions will be taken to ensure confidentiality. All the participants will be asked not to repeat the comments made by the colleagues during these meetings.
- 08) All research data will be kept within the responsibility of the researcher, and will be destroyed five years after the publication of the thesis.
- 09) The researcher does not foresee any risks to me for participating in this study.
- 10) I will have the opportunity to access the preliminary results of the study just after the period of participation and the end results after the thesis publication.
- 11) I have been given the opportunity to ask any questions I wish regarding this research. If I have additional questions about the research, I may contact Delfina Cristina Paizan, at (45) 572-5065 or dpaizan@yahoo.co.uk.

Participant's Name

Participant's Signature

Date

¹⁵ English for Specific Purposes

Appendix 2 – Students' Interview Protocol

Initial Interview with Students

Personal

1. What is your name?
2. Please, outline briefly your previous education:
3. What is your language knowledge?
 - Do/Did you attend English classes in a private language school?
 - Do/Did you study English because of a specific reason (career?)

Their Practice

4. Why did you choose this course?
5. What is the importance of the English class in your course? (What is more important to do with English in your course?)
6. What are the best things about your English class? What are the worst things about your English class?
7. Is there something that you are taught and you do not need? Is there something that you need and you are not taught? What is it?
8. What difficulties do you have with English? (Vocabulary? Reading?) / How do you overcome these difficulties? (Study vocabulary? Grammar?)
9. What are the materials you use in the classroom? What do you think about them? What is good? What is bad? How might they be improved? How could your English classes be more interesting?
10. What do you use computers for here at the university? And at home? Do you use computers to study? What tools/resources do you use? Are they helpful? What resources would you like to use in your English class? Why? How?
11. You are going to be a Computer Scientist. How do you feel about technology? (What comes to your mind when you think about it? Do you feel pressurized to use it in your practice? Do you feel overwhelmed by it? Do you feel you don't understand it?).

Design

12. Do you have any experience in Web design? Yes? Tell me about it / No?
How do you think it is?
13. Do you have any experience in designing classroom material? Yes? Tell me
about it / No? How do you think it is?
14. In your opinion, what are the necessary skills/knowledge to design classroom
material?

The Project

15. Why did you accept to participate in the present project?
16. How do you think your participation will be?
17. Do you expect teachers and technologists to have a valuable contribution to
the design? Yes? What kind of contribution? / No? Why?
18. How do you think the group will work?
19. Do you have any concern on your participation on the present project? Yes?
What concerns? / No? Why?

Final Interview with Student

Re-Visiting Questions

1. You have said XXXX, but has the process of design changed your mind about it?

Themes:

1. What is your opinion on the Portal? Did you like it? Would you use it?
2. Do you think that if you were not there the Portal would be different? How? Why?
3. Would you use technology in the future to support your language learning? How?
4. Things that might be added to the portal (translator, exercises, etc). How it might be helpful? Why? How it might be connected to your language learning?
5. Was there any difference between technologists'/teachers'/students' contribution?

What?

6. Do you feel you made a valuable contribution? What?
7. Did you ever feel unable to contribute? Why?
8. Did you always feel listened to? Yes/No? Why?
9. Tell me about the experience of using an online diary.

Appendix 3 – Teacher’s Interview Protocol

Initial Interview with the ESP Teacher

Personal

1. What is your name?
2. Please, outline briefly your previous education:
3. What is your language knowledge?
4. What is your experience in language teaching?

Teacher’s practice

5. What approach do you use to teach ESP?
6. What do you think your learner’s needs and interests are?
7. What are the strengths/weaknesses in teaching in this particular context?
 - a. What difficulties do your students have?
 - b. What do you do to overcome these difficulties?
8. What are the materials you use in the classroom? What do you think about them? What is good? What is bad? How might they be improved? (Be as specific as possible). How could the English classes be more interesting?
9. Do you use computers to teach English? What tools/resources do you use? Are they really helpful? What resources would you like to use? Why? How?
10. What do you use computers for here at the university? And at home? How do you feel about technology? (What comes to your mind when you think about it? Do you feel pressurized to use it in your practice? Do you feel overwhelmed by it? Do you feel you don’t understand it?).

Design

11. Do you have any experience in Web design? Yes? Tell me about it / No? How do you think it is?
12. Do you have any experience in designing instructional material? Yes? Tell me about it / No? How do you think it is?
13. In your opinion, what are the necessary skills/knowledge to design such a material?

The Project

14. Why did you accept to participate in this project?
15. How do you think you may help in the present project?
16. Do you expect technologists and students to have valuable things to say to you? What things?
17. How do you think the group will work?
18. Do you have any concern on your participation on the present project? Yes? What concerns? / No? Why?

Final Interview with the ESP Teacher

Re-Visiting Questions

1. You have said XXXX, but has the process of design changed your mind about it?

Themes:

2. What is your opinion on the Portal? Did you like it? Would you use it?
3. Do you think that if the students were not there the Portal would be different? How? Why?
4. Things that might be added to the portal (translator, exercises, etc). How it might be helpful? Why? How it might be connected to language learning?
5. Was there any difference between technologists'/teachers'/students' contribution? What?
How did they contribute? What about the students'? Did it surprise you?
6. Do you feel you made a valuable contribution? What? (As a teacher/designer?)
7. Did you ever feel unable to contribute? Why?
8. Did you always feel listened to? Yes/No? Give me examples.
9. Tell me about the experience of using an online diary.