

ELECTRONIC ROLE-PLAY AS A  
MANIFESTATION OF OPEN TASK  
COMPUTER-ASSISTED LANGUAGE  
LEARNING:  
A CASE STUDY

Christine B. L. Leahy

A thesis submitted in partial fulfillment of the requirements of  
Nottingham Trent University for the degree of Doctor of Philosophy.

February 2011

This work is the intellectual property of Christine B. L. Leahy. You may copy up to 5% of this work for private study, or personal, non-commercial research. Any reuse of the information contained within this document should be fully referenced, quoting the author, title, university, degree level and pagination. Queries or requests for any other use, or if a more substantial copy is required, should be directed in the owner of the Intellectual Property Rights.

## **Abstract**

This thesis explores the effect and effectiveness of computer-assisted language learning (CALL) as manifested in one specific electronic role-play (ERP) which was designed for a group of final year undergraduate students of international business (with German). The ERP task was informed by a sociocultural perspective of second language acquisition (SLA) and task-based learning, and was embedded in a constructivist approach. The purpose of the ERP was to create meaningful opportunities for advanced foreign language practice for higher education students which combine their language study with their main degree course. The task mimicked professional situations, incorporating skills students would be likely to encounter in their future workplace and required them to create the outline of a marketing strategy for a product of their choice to be launched on the German market. The ERP task and its effectiveness was researched through a qualitative research approach using case study methodology which encompassed three main methods: tracing semantic strands in student-produced texts in order to explore content-learning potential, output theory to evidence potential for language learning, and grounded theory in order to explore how students appropriate the computer environment while completing the task.

The case study concentrated on comprehensive data collected through the core case study which represented the 6<sup>th</sup> time the ERP was used in class. Data collected during previous ERPs was used for triangulation purposes.

The findings show that the task was successful in aiding students to acquire content and language knowledge. The self-directed learning approach facilitated students to follow their interests and to determine the direction of their marketing strategy, thereby 'owning' the learning process and the outcome. The research highlights different learner behaviour in the computer room environment and various ways in which the affordances were utilised.

This research contributes to the empirical knowledge of effect and effectiveness of open task CALL as manifested in the ERP. Through the particular research approach the thesis contributes to the methodological knowledge in CALL.

<b>Abstract</b> .....	<b>3</b>
Acknowledgement.....	8
Key to abbreviations and frequently used terms.....	9
Key to students and time indicators.....	10
List of Figures.....	11
List of Tables.....	12
<b>Introduction</b> .....	<b>13</b>
Background to the study.....	15
Originality.....	24
Outline of chapters.....	26
<b>1 Pedagogical considerations applied to CALL</b> .....	<b>30</b>
1.1 CALL as part of the language teaching and learning modes.....	32
1.1.1 The role of the computer.....	33
1.1.2 The role of pedagogy.....	36
1.2 Trends in pedagogical approaches to CALL.....	38
1.3 Acceptance of technology.....	44
1.3.1 Societal acceptance of technology.....	44
1.3.2 Acceptance of technology on the part of learners.....	45
1.3.3 Acceptance of technology on the part of teachers.....	47
1.4 Sociocultural perspective on second language learning.....	53
1.4.1 Collaborative learning.....	53
1.4.2 Constructivism.....	54
1.5 Summary of chapter 1.....	56
<b>2 SLA theory and task design considerations</b> .....	<b>58</b>
2.1 Theory of second language learning.....	59
2.2 Motivation.....	63
2.3 Task design issues.....	67
2.4 Role-play and language learning.....	69
2.5 Definition of task.....	71
2.6 Task-based language learning.....	72
2.7 Task-based learning and CALL.....	74
2.8 Specific tasks for the ERP.....	77
2.9 Summary of chapter 2.....	86
<b>3 Methodology</b> .....	<b>88</b>
3.1 The methodological problem.....	88
3.2 Development of methodology.....	90
3.3 The nature of enquiry.....	91

3.3.1	Positioning of the research questions in a research paradigm..	91
3.4	Summary of section .....	100
3.5	Case study as a methodology .....	102
3.6	Summary of section .....	106
3.7	Evolution of methods for data collection .....	107
3.8	Longitudinal perspective .....	108
3.9	Summary of section .....	109
3.10	The teacher / researcher .....	109
3.11	Data collection methods .....	110
3.11.1	The pilot study .....	110
3.11.2	The interim phase .....	110
3.11.3	The core case study .....	114
3.12	Data analysis methods .....	115
3.12.1	Discussion of theoretical propositions and research methods ..	115
3.12.2	Data analysis methods addressing research question 1 .....	115
3.12.3	Data analysis methods addressing research question 2 .....	117
3.12.4	Data analysis methods addressing research question 3 .....	122
3.12.5	Grounded theory (GT) .....	122
3.12.6	Discussion of grounded theory .....	123
3.13	Discussion of approach and application regarding this study .....	124
3.14	Summary of chapter 3 .....	125
<b>4</b>	<b>The core case study, data and data management.....</b>	<b>127</b>
4.1	The case study .....	128
4.1.1	Exploratory case study .....	129
4.1.2	The context .....	129
4.1.3	The participants .....	130
4.2	The data overall, data collection methods .....	131
4.2.1	The data chosen for the core case study .....	136
4.3	Method of coding and indexing .....	141
4.4	Data management .....	142
4.5	Summary .....	143
<b>5</b>	<b>Results and discussions .....</b>	<b>145</b>
5.1	Findings: Acquisition of content .....	146
5.1.1	Definition of 'content' learning .....	146
5.1.2	Findings relating to research question 1 .....	147
5.1.3	The comparative method of tracing content acquisition.....	147
5.1.4	Method of tracing content strands .....	148
5.1.5	Group 1 – Learning content: comparative method.....	149
5.1.6	Group 4 - Learning content: comparative method .....	152
5.1.7	Content development relating to the topic 'target group' .....	156

5.1.8	Content development relating to the topic 'location' .....	157
5.1.9	Content development relating to the topic 'pub' .....	158
5.1.10	Longitudinal perspective: Content acquisition .....	160
5.1.11	Discussion.....	164
5.1.12	Evaluation criteria .....	169
5.1.13	Summary of answer to the first research question.....	170
5.2	Findings: SLA.....	172
5.2.1	Conditions promoting SLA .....	172
5.2.2	Findings relating to research question 2.....	175
5.2.3	Longitudinal perspective: Language-related episodes.....	176
5.2.4	Language-related episodes in the core case study .....	178
5.2.5	(1) The learner notices a gap.....	178
5.2.6	(2) The learner forms hypothesis about L2 use .....	182
5.2.6.1	Looking for appropriate vocabulary and hypothesis testing.....	182
5.2.7	(3) The learner reflects on language (metalinguistic function).....	189
5.2.7.1	Metalinguistic role in languaging and peer-tutoring .....	194
5.2.8	Other language related episodes .....	200
5.2.8.1	Spell checker use.....	200
5.2.8.2	Tutor-initiated focus on form .....	203
5.2.9	Discussion.....	205
5.2.10	Evaluation criteria .....	210
5.2.11	Summary of answer to the second research question .....	211
5.3	Findings: Behaviour in the computer room.....	214
5.3.1	What do students actually do, when involved in the ERP?.....	214
5.3.2	Longitudinal perspective .....	215
5.3.3	Core case study: Findings relating to research question 3 .....	217
5.3.4	Categories gained through application of GT.....	219
5.3.4.1	Categories gained through application of GT – Week 1 .....	220
5.3.4.2	Categories gained through application of GT – Week 2 .....	223
5.3.4.3	Categories gained through application of GT – Week 3 .....	237
5.3.4.4	Categories gained through application of GT - Week 4.....	242
5.3.5	Discussion of results gained with GT method .....	245
5.3.5.1	Affordances.....	246
5.3.5.2	Expert role.....	247
5.3.5.3	Focus on form and agency .....	249
5.3.6	Embedded case stories .....	252
5.3.6.1	Hindrance of project development during week 1.....	253
5.3.6.2	Change in behaviour during week 2 .....	257
5.3.6.3	Discussion of embedded case stories 1 and 2 .....	258
5.3.6.4	Navigation problems and lack of computer literacy.....	262

5.3.6.5	Navigation issues – overcoming technical obstacles .....	264
5.3.6.6	Text production in technology-rich environment .....	265
5.3.6.7	Discussion of embedded case stories 3 to 5 .....	266
5.3.7	Evaluation criteria .....	267
5.3.8	Summary of chapter 5 .....	269
<b>6</b>	<b>Conclusion.....</b>	<b>272</b>
6.1	Contribution to empirical knowledge.....	272
6.1.1	Construction of knowledge regarding research question 1 .....	274
6.1.2	ERP and interactional patterns .....	275
6.1.3	Task evaluation .....	277
6.2	Contribution to the methodological knowledge in CALL .....	280
6.2.1	Limitations .....	282
6.2.2	Scope .....	283
6.2.3	Validity .....	283
6.3	Future research .....	285
<b>7</b>	<b>Bibliography.....</b>	<b>287</b>
<b>8</b>	<b>Appendices.....</b>	<b>308</b>
8.1	Appendix 1 The 6 different ERPs .....	308
8.1.1	The case of this case study.....	308
8.2	Appendix 2 Original texts in German .....	309
8.2.1	Task brief (German) ERP 2004-5.....	309
8.2.2	Group 1: Comparison questions – report.....	311
8.2.3	Group 4: Comparison questions – report.....	312
8.3	Appendix 3 Computer room seating arrangement .....	323
8.4	Appendix 4 Student consent form .....	324
8.5	Appendix 5 Sample of data created by STARR software .....	325
8.6	Appendix 6 Email correspondence with specialists in the field.....	326
8.7	Appendix 7 Main data (overview).....	328
8.8	Appendix 8 Breakdown of the length of recordings.....	330
8.9	Appendix 9 Attendance.....	331
8.10	Appendix 10 Translation of the debriefing.....	332
8.11	Appendix 11 Qualitative research paradigm .....	340

## **Acknowledgement**

I would like to thank all the students who participated in the project and gave me their permission to use their data for research.

I would like to express my thanks to Caroline Stainton and Francesca Bargiela for supervising me during the earlier stages of the PhD study, Mercedes Carbayo-Abengozar, Pete Bradshaw and Bill Niven for seeing me through the final stages and Mark Warschauer and Richard Johnson for acting as external advisors.

Thanks also go to Trevor Pull and Paul Molineaux for their technical support in class and beyond, for uploading of software, downloading of Camtasia recordings and burning of CDs. Special thanks go to Trevor who acted as sounding board and technical advisor and support in several of my projects during the years.

Thanks go to Evan Stewart who gave permission that the final project could run in a computer room using Camtasia.

Thanks go to TechSmith for giving permission to use the software free of charge on multiple computers for the duration of the project.

I would also like to express my thanks to my family, particularly my children for being patient and supportive.

## Key to abbreviations and frequently used terms

*	In examples of student work in German, an asterisk indicates an error in accuracy (only used in the context of RQ2 which deals with SLA)
BAIB	Student is enrolled in BA programme: International Business
CAI	Computer-assisted instruction
CAL	Computer-assisted learning
CALL	Computer-assisted language learning
CLIL	Content and language integrated learning, usually in reference to schools which teach subjects, e.g., history, geography through a foreign language as the medium of instruction
CMC	Computer-mediated communication
ERP	Electronic role play
External	External student studying ULP language, in this case a mature student
FRG	Federal Republic of Germany = West German State, founded in 1949; since 1990 re-unified with the former GDR. The geographical area of the former GDR can be referred to as the "new federal states" (neue Bundesländer).
G3 phones	3 <sup>rd</sup> generation mobile phones
GDR	German Democratic Republic = East German State between 1949 and 1990. During the Cold War, Germany was divided into capitalist West – communist East.
ICTs	Information and communication technologies
L2	Language other than first, i.e. it can be a second language or foreign language
ULP	University Language Programme
VLE	Virtual learning environment
VLP	Virtual learning portal
RQs1-3	Research questions 1 to 3
SLA	Second language acquisition
Bundesland (sgl)	Federal state
Bundesländer (pl)	Federal states
	These terms (Bundesländer + federal states) are used interchangeably.
5 neue Bundesländer	Five new federal states: Brandenburg, Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt, Thüringen
Alte Bundesländer	The federal states of the German Federal Republic before re-unification: Baden-Württemberg, Bayern, Hessen, Niedersachsen, Nordrhein-Westfalen, Rheinland-Pfalz, Saarland, Schleswig-Holstein Stadtstaaten: Hamburg, Bremen, West Berlin

### Key to students and time indicators

Key to students in electronic role-play dealing with pub chain (2005), recorded with Camtasia. Student names have been replaced by numbers to safe-guard the students' anonymity.

	Student ID in thesis	Student characteristics: e.g. female / male	Role in electronic role-play
Group 1	student 1	F / BAIB / undergrad	Company A – wants to introduce product to German market
	student 2	M / ULP / external	
Group 2	student 3	F / BAIB / undergrad	Company B – market research company in Cologne which acts in advising capacity
	student 4	F / BAIB / undergrad	
Group 3	student 5	F / ULP / undergrad	Group which researches similar products in Germany
	student 6	M / BAIB / undergrad	
Group 4	student 7	F / ULP / undergrad	Group which researches market conditions in Germany
	student 8	F / BAIB / undergrad	
Group 5	student 9	M / BAIB / undergrad	Group which researches cultural differences
	student 10	M / BAIB / undergrad	

Other participants		
T	tutor	Supporting + assisting students in the fulfillment of their tasks
Technical Support 1 and 2		Assist in the smooth running of the project; upload and activate Camtasia; download recorded files onto CDs

Email time indicator, e.g., "12:58" – refers to the time counter on the sent email. This does not necessarily represent the true time the email was sent since the computer clocks were not synchronized and not all set to real time.

Camtasia time counter, e.g., "We 2, student 1; 42:13" - refers to week 2, transcript taken from the machine of student 1, 42 minutes and 13 seconds into the recording.

## List of Figures

Figure 1	SLA Theory, CALL Research + Task Design .....	28
Figure 2	Technology Adoption Life Cycle .....	48
Figure 3	Simplified Task-Based Learning Framework .....	74
Figure 4	Generic Pathway For The Entire Electronic Role-Play .....	79
Figure 5	Skills Employed During The Task .....	85
Figure 6	Development Of Methodology .....	92
Figure 7	Single Case Study Design .....	105
Figure 8	Communication Pattern .....	187
Figure 9	Simplified L2 Learning Cycle .....	205
Figure 10	Activating Prior L2 Knowledge .....	207
Figure 11	Triangular Communication .....	216
Figure 12	Procedural Discussion.....	220
Figure 13	"Expert" Role .....	221
Figure 14	Dealing With L2 Problems .....	223
Figure 15	Focus On Form .....	225
Figure 16	Collaboration.....	226
Figure 17	Working Modes.....	229
Figure 18	Text Editing .....	236
Figure 19	Preparing A Presentation .....	238
Figure 20	Focus On Form .....	239
Figure 21	Dealing With Technology Problems.....	240
Figure 22	Individually Written Report .....	243
Figure 23	Collaboratively Written Report.....	244
Figure 24	ERP VS Second Life.....	269
Figure 25	Meanings Of Collaborative Construction Of Knowledge.....	274

## List of Tables

Table 1	The Three Stages Of CALL (Warschauer) .....	39
Table 2	The Three Phases Of CALL (BAX) .....	41
Table 3	Research Paradigms.....	94
Table 4	Progression Of The Electronic Role-Play Task .....	112
Table 5	Method For Identifying Whether Content Was Learned .....	119
Table 6	Questions Aiding Coding .....	123
Table 7	Group 1 Comparison Questions – Presentation/Report.....	151
Table 8	Group 4 Comparison Questions – Presentation/Report.....	154
Table 9	Multimedia + Test Performance .....	168
Table 10	Peer Tutoring .....	191
Table 11	Agency In The Classroom.....	251
Table 12	Comparison Of Questions (Gr.1, Week 1) – Report (Week 4).....	311
Table 13	Comparison Of Questions (Gr.4, Week 1) – Report (Week 4).....	312
Table 14	Debriefing May 2005 (In German).....	315
Table 15	Main Data Utilized For Analysis .....	328
Table 16	Corpus ERP .....	330
Table 17	Translation Of Debriefing May 2005 (In English) .....	332
Table 18	Validity .....	340

## Introduction

This thesis explores the effectiveness of an electronic role-play (ERP) in foreign language (L2) learning. The ERP addressed an identified need for meaningful L2 practice in a subject-specific context in a final year L2 class (German) for business students. The ERP was designed as a collaborative computer-assisted language-learning task which was embedded in constructivism and a sociocultural perspective of second language acquisition. In five groups, the participants followed different sub-tasks which were planned to stimulate communication and negotiation between the different groups and which aimed to combine the students' existing subject-specific knowledge with new information sourced from the Internet. In collaboration, students constructed the outline of a marketing strategy for a product of their choice. The ERP-sequence was integrated into the curriculum of the language module for several years.

The present research is based on a case study and represents an exploration of the electronic role-play as a manifestation of computer-assisted language learning (CALL). Yin (2009) defines case study as an in-depth empirical inquiry into a contemporary phenomenon in which variables cannot be controlled. The case being studied here is open task CALL in the form of the ERP<sup>1</sup>. The ERP is situated in the context of its pedagogical approach and the underlying assumptions regarding second language acquisition (SLA) theory. It is therefore necessary to address pedagogical approaches in CALL, task design questions and SLA theory.

The acronym CALL represents language learning through the assistance of a computer. In order to contribute to the understanding of the potential usefulness of CALL in open task settings, the language and content produced by students will be examined in some detail. Furthermore, it is of interest to learn more about the effect the learning environment has on the learner. Computers can assist learners through the access to tools they offer, for example, spell checkers and electronic dictionaries. Making constructive use of these requires some degree of computer literacy and a willingness to use these tools. Just because the tools are available, it does not necessarily follow that they are used (Garrett 1995), and just because they are accessed, it does not have to follow that they are used effectively. It is

---

<sup>1</sup> The original German task for the ERP can be found in Appendix 2, the English translation can be found in chapter 2.

therefore of interest to know how students work in a CALL environment, i.e., whether they appropriate the affordances of the computer and Internet access to serve their purposes and express their agency. What do they actually do in order to solve the CALL task at hand and solve problems or difficulties, related to the task or learning environment, as they arise? This research addresses the questions if and how ERPs can be effective for the purpose of learning language and content, and which effect the learning environment may have on the participating students, as evidenced by their behaviour in the CALL environment. This general interest is addressed through the following three research questions.

1. Can content be learned in this open framework of CALL? If so, how can it be demonstrated?
2. Can the electronic role-play facilitate language learning within CALL? If so, how can this be demonstrated?
3. What do students actually do, when involved in this kind of CALL task? What kind of student behaviour or interactional patterns emerge?

In answering these questions, the research has two main aims:

- (1) to contribute to the empirical knowledge of the effects and effectiveness of collaborative CALL in open task settings.
- (2) to contribute to the methodological knowledge in CALL.

The concise Oxford dictionary (2001) defines "effect" as "a change which is the result or consequence of an action or other cause". This research explores the effect of the computer on the learning in the definition's non-specific terms, i.e., the behaviour students show as a consequence of engagement with the CALL task, whether and how the students appropriate the computer's affordances for their own purposes.

"Effective" is defined as "producing a desired or intended result" (ibid). The ERPs effectiveness would be reflected in the intended result of learning content as well as language. The outcome of the case study and the answers to the research questions contribute to the empirical knowledge about the effectiveness of this kind of open task CALL and the effect the computer setting may have on the student behaviour.

Addressing the research questions opened the problem of appropriate methods and methodology. Two main issues presented a problem: Firstly, the participants are advanced learners of the foreign language. It is therefore difficult to establish any causal relationship between the ERP treatment and newly learned language. Equally, it is problematic to establish a clear causal relationship to content learned. Secondly, the ERP is based on an open task which gives students choices which make the development of the ERP in part unpredictable. This

unpredictability leads to an increase in variables, and therefore has an impact on the methodological choices. Quantitative research aims to reduce variables in order to gain reliable research outcomes and is therefore less suitable for this case study. Qualitative research methods popular in educational research, for example, action research or ethnography are also not suited to answer the posed research questions. CALL, a rapidly growing research field of interdisciplinary nature, does not have an established research methodology (Hubbard 1996), I therefore had to make choices to find a research methodology with methods to deliver answers to the research questions posed, thereby contributing to the methodological knowledge in CALL.

### **Background to the study**

The electronic role-play forms the centre of this thesis, it is the case studied. Between 1998 and 2005, it was employed in class six times<sup>2</sup>. The concept and use of an ERP was developed for several reasons which were based on the student needs and embedded in the wish to make the language class more relevant and interesting for the particular student group. These reasons will now be discussed.

The ERP task is embedded in the context of local needs for my learners of business German, but also in the wider context of language teaching pedagogy and CALL (Bax 2003; Lamy and Hampel 2007; Lund 2003; Thomas and Reinders 2010; Tammelin 2004; Warschauer 2000b) as well as teaching approaches in higher education (Laurillard 2002; Somekh 2007). On the local level, the need for a relevant task for my learner group was in part conceived due to the dissatisfaction language learning textbooks can create: Textbook-based language study deals with topics which have been considered worthy because of their anticipated relevance to the learner. The production of textbooks involves several stages of choosing the materials, their development and quality control checks. Thereby considerable amounts of time elapse between the conception of the idea for a particular textbook and its commercial availability. The relevance of the topic areas to the learner may be adversely affected by the time which has elapsed. For example, the topics cannot represent current affairs, they may relate to them, but will be older. In an age of access to information on the Internet which is frequently updated, text books may be perceived as outdated (Ioannou-Georgiou 2005) and less relevant to advanced subject-specific language learners (Schröder 2004) who are able to successfully manage information in the studied language (L2) at a higher level. Advanced learners are less dependent on scaffolding than beginner to intermediate L2 learners who depend more on a pre-selected introduction of vocabulary and grammatical structures.

---

<sup>2</sup> See Appendix 1 for the overview of the six ERPs.

In the wider context of teaching in higher education (HE), learning in computer rooms has become more wide-spread since the late 1990s. At Nottingham Trent University, computer-room learning consisted mainly of student self-study, the computer rooms with Internet access were available for student use, rather than being a regular locus for teaching. However, the possibility to incorporate information and communication technology (ICT) into the learning process, can open new opportunities to teaching and learning and has been attracting much interest (Chambers and Davies 2001; Davies 2010; European Commission Report 2007/9; Lund 2003; Somekh 2007). Innovative approaches to language learning make it possible to incorporate current materials and to overcome the time-delay inherent in commercially available teaching material like textbooks. Internet access enables learners to access a vast amount of up-to-date authentic materials in the target language, which can be selected according to the learners' interests and needs and the planned learning outcomes (Blake 2008; Warschauer, Shetzer and Meloni 2000). As a teaching and learning method, the use of current authentic text material in itself is not new. Language classes are often supplemented with authentic texts, for example, newspaper articles, but usually in paper form pre-selected by the teacher<sup>3</sup>. However, the use of Internet materials chosen by the students for specific purposes as an integral part of an electronic role-play was not common when the ERP task was designed. At the time that the original ERP was created, the late 1990s, a considerable number of CALL studies researched computer-mediated communication (CMC) and looked at ways the computer environment could support and enhance second language learning (L2) processes (cf. review by Levy 2000). Some studies also looked at the behaviour which students exhibited while they were engaged in language learning tasks involving computers, a focus which is of interest in the study under consideration. Two examples shall be given here.

Chun (1998) found an increased use of questions (W-questions<sup>4</sup>) composed by beginner learners, thereby showing initiative in L2 use rather than just answering teacher-led questions. Teacher-led questions can be expected to be a dominant feature in traditional classroom teaching at beginner level. The observed increase in student initiative to instigate communication was seen as a positive result attributed to the use of a CALL environment.

Some students who tended to be shy in traditional classrooms seemed to participate more in computer-based tasks, possibly because of the absence of social

---

<sup>3</sup> Throughout the thesis, the terms teacher, tutor and lecturer are used interchangeably. The language teacher in HE may also be a lecturer in the subject, i.e. in this case lecturer in German.

<sup>4</sup> E.g., "was", "wie", "warum" (what, how and why).

cues or the additional time for composition of text which was less pressurised than in an oral situation (Tella 1992a, Warschauer 1997).

Due to the author's perceived lack of availability of appropriate and current subject-specific L2 material relevant to students enrolled in law and business studies programmes (part of my teaching portfolio at the time), I set out to develop tasks that were embedded in specific pedagogical beliefs and conclusions drawn from research into task design and CALL. These tasks involve extensive L2 use in the traditional four language skills of listening, reading, writing and speaking and the students' engagement with their subject-specific knowledge relating to their main degree courses. The task frameworks themselves varied<sup>5</sup> and included, for example, international email projects between students in Britain and Germany who were enrolled in similar degree programmes as well as electronic discussion forums.

Central to this thesis is one particular task, which is embedded in an electronic role-play. The underlying pedagogical approach, constructivism, includes a notion of learning which is not built on knowledge transfer models and which questions the place of text books and pre-selected content in the learning process (Wolff 2002).

The task itself was inspired by the LEVERAGE project (1996-1998). This was described as "exploring how the capabilities of broadband networks can be married with innovative task-based pedagogy to provide solutions to the rapidly expanding need for enhanced linguistic and cross-cultural skills which enable people to co-operate in an increasingly international environment" (LEVERAGE News No 4, 1998). As part of the LEVERAGE project, adult students in three different European cities, Paris, Madrid and Cambridge, solved tasks collaboratively with the help of Internet access to relevant subject-specific information, email and video contact between partners and a language advisor who could be called upon to help.

Similar to the tasks used in the LEVERAGE project, the ERP under discussion here was designed with the purpose of constructing meaningful opportunities for L2 use. The activity was embedded in an open framework which encouraged students to make their own decisions, and which allowed for the integration of their subject-specific knowledge, hereby mimicking situations of professional life. The ERP therefore served as means for the collaborative construction of knowledge, rather than being based on a knowledge transfer model, and it incorporated the use of technology. It was developed with several design features:

(1) The ERP was designed to engage business students with subject-specific L2 practice. The task needed to be interesting and meaningful for students. It was therefore set in their subject-specific area, namely marketing. Students were

---

<sup>5</sup> Some of these projects were subsequently written up and published, e.g., Leahy 1998, 1999, 2000, 2001a, 2001b.

asked to develop an outline of a marketing strategy for a product of their choice to be introduced to the German market.

(2) The module aimed to prepare students for their later professional life. Therefore the task was set up to mimic activities students were likely to encounter in their working life. Students worked in teams, taking on specified roles, for example, to direct the project, advise other groups or supply additional information for other groups.

(3) The task was developed following the premise that most students learn best when they have an input regarding the topic area or the freedom to follow their choices regarding topics and learning paths (Benson 2001; Colpaert 2004, Wolff 2002), but have a framework for the learning situation.

Earlier studies relating to the ERP (Leahy 2001b, 2004a and 2004b) had incorporated student choices regarding learning paths, navigation routes and indeed the actual content as well. At the time, it was difficult to anticipate how IT-literate the individual students would be since ownership of personal computers was less wide-spread and teaching with computers was still unusual at the turn of the last century. CALL research publications had been emerging which suggested different learner behaviour in the computer room from the traditional classroom (e.g., Chun 1998; Sullivan 1998; Tella 1991). Therefore investigation of students' behaviour (in the sense of investigation into interactional patterns the students displayed when engaged in the CALL task) seemed more appropriate than pre-determining an outcome. The early studies showed different student behaviour from the traditional classroom (cf. Somekh 2007). It seemed appropriate to explore such behaviour with an open mind and not to formulate specific hypothesis which could be verified or falsified; research questions could be formulated, but not specific hypotheses.

Anecdotal evidence seemed to indicate that all of the six ERPs were successful: Students engaged with the task, they were exposed to extensive L2 practice, they produced a task outcome and they liked the 'unusual' approach to language learning. The student feedback was positive, the work they produced was pleasing, the amount of individual L2 output appeared greater than would be expected in a traditional classroom. For example, while engaged in the electronic role-play, two students shared the same speaking time they would normally share between all members of the class, an opportunity for students which was commented on positively by a participant in one of the earlier cohorts using the ERP<sup>6</sup>.

However, the students' articulated perspectives alone are subjective, do not consider all variables which may impact on the way the ERP is perceived and open

---

<sup>6</sup> The discussions at the end of the projects (debriefing session) encouraged students to give feedback on the learning experience and represent a spontaneous student evaluation of the ERP. The comment was made at that occasion and relates to the fourth ERP.

the wider question of measurement, as alluded to earlier. After all, what makes the ERP a 'success'? How is this success to be defined, showing which characteristics? Operating in a higher education environment, lecturers are obliged to fulfill institutional expectations, for example, as expressed in the institutional strategic plan. They have to keep learning outcomes in mind, test students' individual performance and thereby measure whether they have achieved the set learning outcomes. Measurement of an individual's achievement of learning outcomes can be problematic when the learning process is based on collaboration (Hampel 2009), as is the case in the ERP, and not on knowledge transfer. This would raise the question of appropriate tools for and units of measurement.

Considering the questions above and in order to examine more closely whether the ERP task is a suitable use of technology in L2 classes, the three separate research questions (RQ1-3) investigate the appropriateness of the language learning opportunities in the specific task under consideration. These questions aim at establishing whether this open framework encouraged the learning of content (RQ1) and language (RQ2) and whether interaction patterns emerged while students were involved in this specific CALL task (RQ3). The third question addresses a general interest in student behaviour and the resulting interactional patterns while engaged in such a task. The exploration of the computer room setting and its influence on the language learning process is of interest in order to inform future CALL task design. If the computer is used as a tool for and locus of language learning processes, it is helpful to explore the type of behaviour students engage in, how they make use of the computer's affordances. It is of interest whether and how the computer can support learning. Relevant questions to answer are: Do students take advantage of support tools, for example, electronic dictionaries? How do they use them? Do students just copy and paste information from the Internet or do they alter, synthesise, and summarise text? How do they compose text? What kind of information do they seek out and how do they appropriate it for their purposes? How do they cope with problems they encounter? How do they communicate with their partners and between groups?

Having established the primary research questions, the problem of appropriate research methodology and method became apparent. How can it be measured whether any content is learned? How can variables be controlled? For example, how can it be established what students knew before they engaged in the ERP compared with what they knew at the end? Can a direct correlation be established between the ERP treatment and the knowledge at the end of the ERP? Can pre- and post testing reveal any 'value added' by the ERP treatment? Is pre- and post-testing the best method available in order to shed light on the learning process?

Similar questions arose in relation to RQ2 which set out to investigate second language acquisition (SLA). How can it be established whether language is learned by taking part in the ERP? Should pre- and post testing be used and how could tests be designed to establish a causal effect? For example, how can it be established whether a student learned new vocabulary by reading the Internet in their spare time or as part of the project?

Another complicating factor was added because a constituent part of the ERP was the inherent freedom of student choice. I did not want to prescribe what students had to do and how they had to work through the task. From a task design perspective, student choice can have a motivating effect (Colpaert 2004; Leahy 1998; Vansteenkiste 2009, 2010; Ushioda 2010). I did not want to compromise the task design which appeared to have a positive effect on learners for the sake of a research approach, even though it had been suggested to me to narrow the task framework, to take away the element of student choice in order to enable a research approach with clear hypotheses which could be tested. Instead of reducing variables and thereby the student choice, I wanted to preserve the task design which I 'knew worked well' with the students: Their feedback was positive and the language output pleasing. I therefore had to find ways to address the research questions without altering the framework of the ERP, without changing an open task to a closed task. Thus, this study also reflects the struggle of finding an appropriate research methodology which did not involve compromising the original task design.

I decided to use a triangulation approach for data collection. Triangulation of data refers here to different methods of data collection (Cohen, Manion, and Morrison 2008) in order to study the richness of the learning process while engaged in this CALL task. Therefore all student L2 output was collected as data, emails sent, any text they produced, and recorded and transcribed oral interaction between students. It was envisaged that this would open the opportunity to find evidence of the effectiveness of the task in terms of L2 and content acquisition and therefore answers to the research questions.

A triangulation approach was also used to analyse and interpret the data, i.e., different methods were applied to the same object of study, which has been referred to as methodological triangulation (cf. Cohen, Manion and Morrison 2008:142). In this incident, three different theoretical approaches were applied to the data in order to cover the spectrum of student activities while engaged in the task. Output theory was used in the context of looking for evidence of L2 acquisition (RQ2), and a crude comparison method was applied to establish "value-added" on the content side (RQ1). The third approach (RQ3) consisted originally of observation and later of coding methods as advocated by grounded theory (GT), which were used to make sense of the student behaviour while engaged in the task.

The term observation, as used in this thesis, does not refer to classic ethnographic methods of study, but rather refers to a mindful observance of how students solved the task.

Finally, a triangulation approach could also be applied when taking a more longitudinal perspective towards data and its interpretation, i.e., results of previous ERPs were referred to in support of or as challenge to findings of the core case study.

From the beginning of the first project involving an electronic role-play, I knew what I wanted to achieve, but I did not know how best to go about accomplishing my aim. I searched for a methodology which was suitable to explore the usefulness of the ERP as a manifestation of CALL without compromising the openness of the task. Through the process of elimination, i.e., testing different methodological approaches against the research questions, I realised that my research goal could be achieved within the framework of a case study. Using case study as overarching methodology facilitated addressing the research questions with very diverse methods. This is elaborated in chapter 3 which reflects on the process which led to decisions regarding methods for data collection and data analysis unified in the case study approach which is considered very appropriate for CAL research (Liu 2010).

The project which was originally started with a view of creating a meaningful and engaging task for subject-specific L2 learners became an exploratory case study. During the span of seven years the electronic role-play was used six times. During this time some institutional obstacles which initially hindered the research methods were overcome and the method for data collection improved, starting with crude methods which were available to me at the time and leading to a more sophisticated approach using the tracking software Camtasia. Since the ERPs and the research were, in the main, not funded, data collection was originally hampered by the lack of technological and human support. For example, in all but the last project, the recording of student oral interaction was done with a tape recorder positioned between the two students of each dyad. The Internet pages accessed had to be bookmarked by students and later downloaded in order to have a record of sites and information they accessed. Both these methods can be unreliable, recordings can be contaminated by external noise and therefore of limited use. Students may forget to set bookmarks for web sites or may choose not to set them in the first place. Most of these problems could be overcome in the core case study, the last ERP, which used the Camtasia software which records all voices and noises in the vicinity of the computer and all movements on screen. Hence, in the project under discussion here the method of data collection had improved compared to previous ones.

Equally, the method for analysis had improved by the time the last ERP took place. Particularly for the third research question, the combination of data collection with the help of the Camtasia software, the subsequent transcribing of the recordings and the coding of the data based on grounded theory methods, enabled a more comprehensive approach to the analysis. The analysis of the data and the answers to the specific research questions can inform the discussion of the effectiveness of CALL in open frameworks and shed light on student behaviour when involved in such a task, i.e., shed light on the effect technology may have on learning. The results of this study can therefore contribute to knowledge about the effect and effectiveness of open task CALL and thereby address areas in which more research is needed.

CALL research approaches can be varied, dealing with different foci, for example, usability and effect of software packages (Cheung and Harrison 1992), interface design and navigation routes (Hémard 1997; Hémard and Cushion 1999; Hémard and White 1995), courseware design (Colpaert 2004), given rigid pathways or possibilities for choice (Colpaert 2004; Leahy 1998), learner autonomy (Blin 2004; Littlemore 2001), learner differences, opportunities for L2 use (Shield, Weininger and Davies 1998, 1999a and 1999b, 2000), network-based learning (Chun and Plass 2000; Kern, Ware and Warschauer 2008; Meskill and Ranglova 2000; Tammelin 2004; Zähler, Fauverge and Wong 2000), focus on form (Skehan 2003), appropriateness of material and tasks (Chapelle 1997, 1998, 2000, 2001), writing (Warschauer 2004a), and reading (deRidder 1999, 2000, 2002, 2003; Chun and Payne 2004; Chun and Plass 1997). While at the turn to the 21<sup>st</sup> century many research projects had the Internet and its exploitation for language learning at their core (Brammerts 1996; Little and Brammerts 1996; Nunan 1999; Richard 2000; Skowronek and Kind 1997) or were concerned with software design issues, more recent studies investigate the use of podcasts, blogs, wikis, mobile phones and Second Life for language learning purposes (Bloch 2007; Chen, Hsieh and Kinshuk 2008; Clark 2009; Cooke-Plagwitz 2009; Gromik 2008; Mak and Coniam 2008; Stockwell 2010a)<sup>7</sup>. These changing research foci regarding the technology at the heart of the language learning process are important contributions to the body of

---

<sup>7</sup> See also the interest as reflected in conference contributions, e.g. at annual JALTCALL conferences, 2007, 2008 in Japan and CALL conference 2008, 2010 in Antwerp, where studies focusing on language learning via blogs and mobile phones were presented. Godwin-Jones gives an overview with the title "emerging technologies: Blogs and Wikis: Environments for On-line Collaboration" (2003) and "emerging technologies: Skype and Podcasting: Disruptive Technologies for Language Learning" (2005) in LLT. Since 2005, there have been annual international symposiums on wikis and open collaboration, (<http://www.wikisym.org/archives/>). The interest includes other subject areas than L2 learning, e.g., an IT degree. Cf. Saeed et al. 2009.

CALL research. However, some critique has been voiced, for example, Yang and Chen (2007:862) comment that "most studies regarding the use of Internet technology as a tool for mediating language learning in context are more promotional than research-based", and Levy (1997a:1) considers it "irresponsible to be led purely by the latest technological breakthrough". He suggests that "we must try to make sense of what is going on, in spite of the rate of change", thereby asking for more research which informs about general CALL principles. Levy and others identify a need for basic CALL research (Pujolà 2002), for example, research which links pedagogical approaches to specific CALL applications. Motteram and Thomas (2010:234) highlight the apparent lack of research into "new pedagogies such as TBL" [task-based learning] and CALL. Hampel (2009) also points towards a need for more research in relation to the pedagogy applied, i.e., collaborative approaches in class in order to learn more about the general processes taking place while students are engaged in CALL tasks. Other areas which are less researched are multimedia applications in authentic settings with natural communication (Plass and Jones 2005), a problematic research field since the number of variables limit the available methods and methodology.

Levy defines "effective CALL" as "requir[ing] an instructor to locate the optimal balance of approaches, resources and tools to meet the needs of particular learners in a particular learning context" (2006:1-2). Influencing factors are the learner beliefs (Benson and Lor 1999) and teacher's beliefs regarding the nature of language learning as well as pedagogical beliefs, and the decisions on task-supporting technologies. The task designer has to have the students' particular needs and context in mind when designing specific tasks (Stockwell 2010b), as well as the task's potential for language learning and L2 practice (Levy 2006). The appropriateness of the task influences its effectiveness and has an impact on the evaluation of the task design and whether it is fit for purpose (Chapelle 2001, 2004).

This thesis shares the interest in this combined focus of student needs and context, and shall explain in some detail the decisions and the pedagogical underpinning which led to the specific task design. The pedagogical underpinning forms part of the context in which the case study is situated. Some parts of the thesis are therefore necessarily descriptive in order to provide the case study context for the reader (Bassegy 1999; Yin 2009). Furthermore, description represents a helpful tool for this kind of research (Felix 2005; Levy 1997a), because "empirical, descriptive exploratory work is essential as first step in CALL research" (Pujolà 2002:243), in particular in connection with the application of grounded theory as a method to make meaning of data.

When a L2 learning task has been designed and is ready to be used, it can be evaluated in relation to the student performance, the use of L2 or L2 output. Did

language learning occur through the aid of technology as the name computer-assisted language learning suggests? One of the questions this thesis addresses asks whether the ERP can facilitate language learning. An initial important driver was the desire to seek knowledge and deeper understanding about the potential value of CALL in the specific area of open and collaborative problem-solving tasks and task-based learning, an area which represents a gap in the literature (Ellis 2010: xvi; Gutiérrez 2003).

Common sense may suggest that some computer functions are easily used to enhance language learning. Common sense would point, for example, to the usefulness of access to electronic dictionaries, particularly for weaker students. While learner strategies in accessing help has been studied, for example, in the context of hypertext reading tasks (Chun and Payne 2004; deRidder 2003), the use of glosses (Laufer and Hill 2000; Lomicka 1999; O'Bryan 2008) and a self-study multimedia programme (Pujolà 2002), the way students interact with the computer while engaged in an open CALL task does not seem to have been studied systematically yet, with the purpose to investigate student interaction with the computer functions which can offer help to learn. As Stockwell pointed out there is still a need

to investigate how task-based learning (TBL) may be conducted in such environments [computer-based environments], and how the medium has the potential to affect the way in which learners interact, the language they produce and the strategies they use. (Stockwell 2010:102)

In the context of this thesis, this gap has been addressed through RQs 2 and 3, for example, by way of observing, coding and systematising the emerging patterns of student interaction and behaviour while engaged with the task.

As outlined above, the thesis aims to contribute to the understanding of open task CALL by addressing the research questions. These questions aim to cast light on the student interaction with the computer while engaged in the task, and on evidence of learning of content and L2.

### **Originality**

Through this study, the thesis represents original research. It contributes to CALL research in two original ways, empirical and methodological.

On the empirical level, the originality of the research lies in the exploration of the effect and effectiveness of open task CALL as manifested in the ERP, a task which is embedded in a comprehensive pedagogical approach with underpinning in task-based learning and SLA theory. Furthermore, it contributes to knowledge about student interaction while learners are involved in a collaborative CALL task, informed by constructivism and a sociocultural perspective of SLA.

On the methodological level, the originality of the research lies in the comprehensive approach taken to capture data in an open task framework, and to analyse and interpret it, linking theory and method. Four approaches for this endeavour are taken:

1. The task initially requests students to define questions they themselves want to answer as part of the project, hereby creating a parameter against which the outcome can be measured.
2. Linking SLA research and output theory with the L2 practice as identified in the data and thereby investigating evidence of focus on form, which is seen as a pre-requisite for L2 development.
3. Using Camtasia software to firstly record and secondly investigate student behaviour while involved in a CALL task with an open framework.
4. Applying grounded theory to the data collected in order to find emerging patterns of interaction between students as well as student and computer.

The thesis therefore contributes to knowledge on the level of research methodologies in CALL. Hereby, the thesis contributes to CALL research, a young discipline which is still developing its theoretical underpinning and methodological approaches. While the growing body of CALL research often applies quantitative research methods, the main approach in this thesis is a qualitative one.

The structure of this thesis is influenced by the methodological approach chosen, i.e. case study research. Yin refers to different approaches to case study reporting, for one of them he (Yin 2009) advocates a linear-analytic structure, about which Stake (1995:128) remarked that "the traditional research report of statement of the problem, review of literature, design, data gathering, analysis and conclusion, is particular ill-fitting for a case study report. The case is not a problem or a hypothesis." The case under consideration here does not represent a problem or a hypothesis either, it represents an explorative case study. Research based on hypothesis testing would aim to reduce variables in order to establish some causality. Instead, this case is anchored in students' choices and variables are not reduced but are, instead, built into the design of the case. The importance of the case is one of general interest in discovering the effectiveness of such a task. The purpose of this study is an exploration of how open task CALL as manifested in the ERP can assist learning, not how it can solve a problem. Therefore, this study is not represented with a linear-analytic approach, but should rather become a step towards theory-building and should use what Yin (2009) called a theory-building structure. In such an approach, "each chapter [...] should reveal a new part of the theoretical argument being made" (Yin 2009:177) or rather introduce an important element of the case which can later be incorporated into a developing theory of open task CALL for advanced language learners. This means that this thesis will be

presented in the perhaps unusual form of firstly an introduction of the case's context, i.e. the theoretical underpinning to the actual task. This is followed by the introduction of the methodology in general and data management issues in particular, the findings, the conclusion, and an outlook to future research.

The competing demands on the succession of the presentation of central issues in case study reports are known and expressed by Stake as follows:

One of the distressing facts about such writing [the case study report] is that quite a few different and incompatible things need to be said first: the definition of case, the main issues, the purpose of the study, the methods of inquiry, the nature of the sponsors, the assistance given by others. Obviously, all cannot be first. (Stake 1995:125)

Recognizing these competing demands on the structure of the thesis the central issues of this case, its context, will be presented first.

The thesis is divided into six chapters. The first two chapters provide the context in which the case study of the electronic role-play is situated. The third chapter introduces the methodology applied. These three chapters are interlinked as is represented in Figure 1. This shows the interdependence of the different factors impacting on the case, the relationship between SLA theory, pedagogical considerations and CALL research within the electronic role-play task design and later data analysis. For the reader, Figure 1 represents a simplified 'roadmap' for the development of the ideas in chapters 1, 2 and 3.

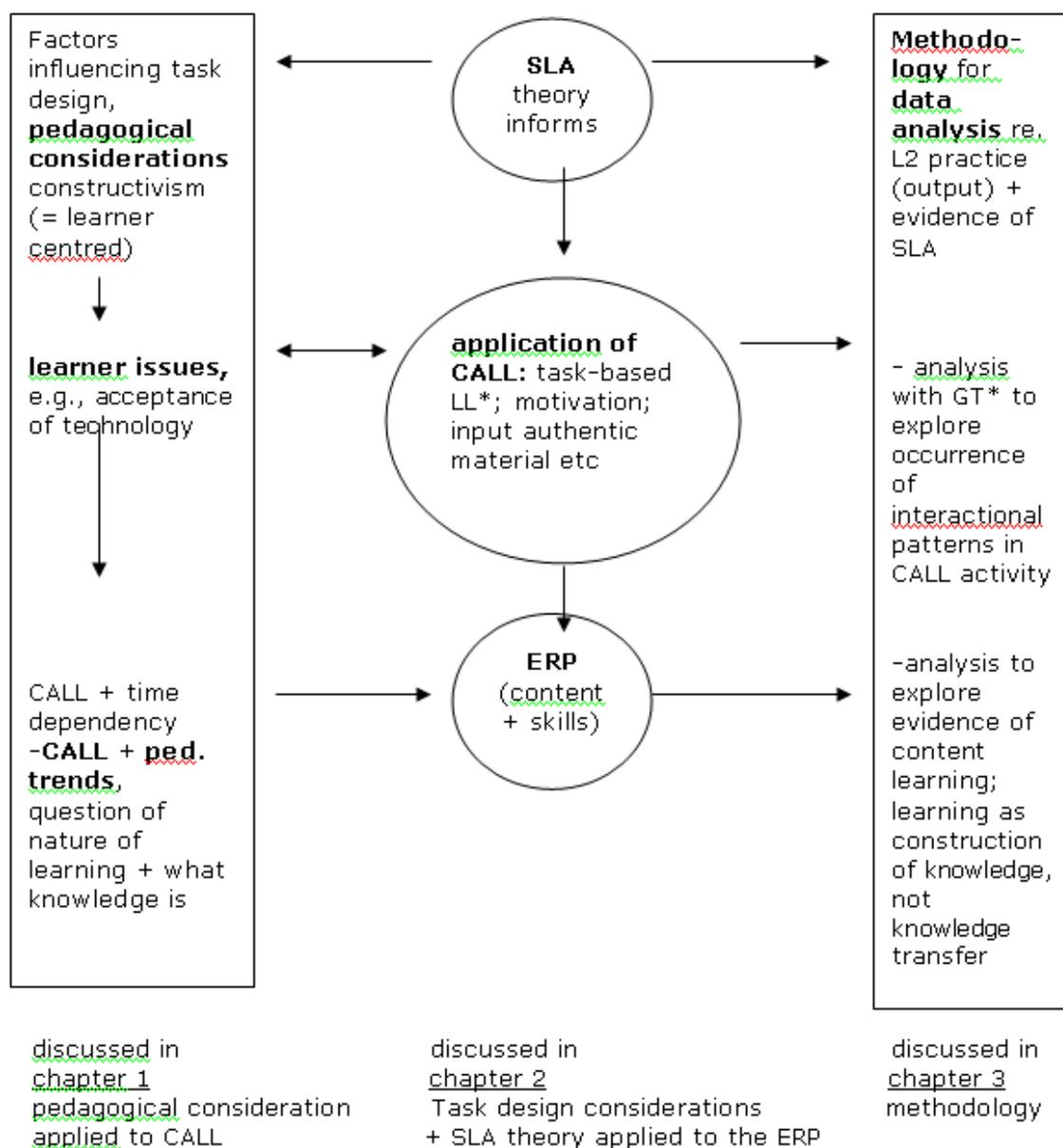
The chapters shall now be introduced in more depth.

### **Outline of chapters**

Chapter 1 highlights some of the pedagogical considerations teachers should engage with before embarking on CALL activities with their students. It elaborates some trends in pedagogical approaches to CALL. The chapter positions the ERP in relation to two influential frameworks of pedagogy and CALL, Warschauer's (2000b) three stages and Bax' (2003) three phases of CALL. While Warschauer's approach is focused on SLA, Bax' focus is on the level of integration of CALL into the class activity. Introducing these frameworks helps positioning the case study under consideration in the context of preceding research. Chapter 1 continues with a discussion of other factors influencing the effectiveness of CALL activities, in particular the level of acceptance of technology on the part of the learners, teachers, the institution, and society as a whole. This has led to the derived request for integration of CALL pedagogy into teacher training. The chapter concludes with the introduction of the collaborative learning approach, constructivism, which was applied to the ERP (cf. Figure 1, column on the left).

Chapter 2 continues providing the theoretical underpinning for the ERP task, but focuses on SLA theory and task design issues. This chapter introduces the concepts of comprehensible but stretching foreign language input and discusses motivational factors which may be seen as enhancing the language learning process. The chapter introduces Willis' (2004) task-based learning cycle and its application to the ERP task. In order to design a CALL task for the specific target group of business students and later evaluate the task's effectiveness of L2 learning opportunities, it is essential to consider SLA theory. This idea is developed in this chapter. Figure 1 represents how SLA theory influenced the particular application of CALL, i.e., the ERP (cf. Figure 1, central column).

Chapter 3 elaborates the journey of discovery of an appropriate methodology with suitable methods to approach the research questions. It situates this research within a qualitative research paradigm and introduces the overarching methodology of a case study approach with the applied methods for data collection, data analysis and interpretation. Chapter 3 names the propositions for the first two research questions and explains how my work on the same ERP (during previous years) had an impact on the research of the core case study. Taking a longitudinal perspective, findings of previous ERPs could serve a triangulation approach. The chapter illustrates how SLA theory, in particular output theory, is applied to make evidence of language learning opportunities visible. It outlines how grounded theory is applied to discover interactional patterns and how the students' output is analysed in order to establish whether content was learned, thereby addressing in some depth the methods applied in order to gain answers to the three research questions posed (cf. Figure 1, column on the right).



\*GT – grounded theory; LL – language learning

### Figure 1 SLA Theory, CALL Research + Task Design

The influence of SLA theory and CALL-related research on the ERP task design and data analysis.

Chapter 4 elaborates the case study approach and in particular concentrates on details regarding data collection and data management. It introduces relevant information on the participants and the units of analysis.

Chapter 5 is divided into three sections, each section concentrating on the findings of one of the three research questions. Preceding the answers to each question, the context in which the question is situated, is explained. The first section begins with a definition of the term content as applied in the thesis. At the

beginning of the second section, output theory is elaborated and the conditions which are seen as promoting SLA. Answers to the third question are embedded in research results of previous ERPs followed by a week-by-week approach to categories and properties gained through a coding exercise based on grounded theory. Through the data analysis several embedded case stories emerged which are introduced.

Chapter 6 provides the conclusions borne out of the research project. It addresses the aims of this explorative case study and reviews some of the steps of the research. It also looks at the research's scope and limitations and suggests avenues for future research.

This introduction to the thesis has briefly outlined the general context of it and introduced the research questions and the claim to originality. The following two chapters shall concentrate on the specific context of the ERP, the case studied here i.e., on (1) the influence of CALL research and pedagogical considerations on the task design and (2) the task design itself with specific emphasis of second language acquisition theory.

# 1 Pedagogical considerations applied to CALL

---

The introduction to this thesis has given some context in which the case study is situated. This chapter and the following one elaborate the influencing factors of pedagogy and second language acquisition (SLA) theory on the actual task design of the electronic role-play. This chapter will sketch some characteristics of CALL and be concerned with a positioning of the ERP as one manifestation of it, embedded in a particular pedagogical approach which involves collaborative construction of knowledge: constructivism.

The chapter introduces two frameworks for phases of computer-assisted language learning (CALL) which look at different factors that impact on CALL. In the context of the introduction of CALL to learning, the level of acceptance of technology by learners and teachers will be problematised and the underlying approach to SLA, the principal use of the computer, and the role of the teacher will be considered. The discussion of these factors enables the positioning of the chosen pedagogical approach for the ERP in its wider context.

---

In very general terms CALL can be described as a method to facilitate language learning with the assistance of computers or in Beatty's words (2003:7) "any process in which the learner uses a computer and, as a result, improves his or her language". This general definition does not give any indication of how language learning in such a setting can come about, indeed, whether language learning takes place, what kind of language learning task is chosen for which purpose, which language skills are involved and which pedagogical beliefs influenced the task design. The definition above does not specify the role of the computer in CALL, and it does not distinguish between learner types.

CALL research of the last 20 years has addressed the issues named above, usually emphasising one particular area over others. For example, one of the leading journals of the field, *Language Learning and Technology* dedicated whole issues to specific skills, for example, to reading (11(3), 2007), listening (11(1), 2007), writing (12(2), 2008), learning grammar (13(1), 2009), learning pronunciation (13(3), 2009), and learning vocabulary (14(2), 2010). Particular

interest in CALL research is also reflected in PhD theses, for example, investigating the usefulness of hypertext in reading comprehension (deRidder 2003) or investigating CALL and the development of learner autonomy (Blin 2004).

Relatively recently (1999) a joint policy statement by EUROCALL<sup>8</sup>, CALICO<sup>9</sup> and IALL<sup>10</sup> declared that CALL had developed "to the point where the status of CALL as an academic field of studies requiring special consideration should be seriously considered" (Davies 2001:25), thereby clearly implying that CALL had not yet achieved the status as independent academic field. The same statement continued that "CALL is no longer either a straightforward pedagogical application of a new medium, nor simply a practical extrapolation of theoretical work in some other discipline" (ibid). Since the above joint policy statement was agreed in 1999, CALL has attracted increasing numbers of research studies, and is in the process of establishing itself as a recognised research field with recent interest expressed in several research review studies (Stockwell 2007). However, the field itself is still evolving and its boundaries have not yet been clearly defined, no doubt partly because CALL itself is interdisciplinary and draws on other fields, for example, applied linguistics, cognitive science, but also pedagogy. Beatty (2003:8) sees another reason for the lack of clearly defined boundaries in the constant development of computer capabilities and states that "CALL is an amorphous or unstructured discipline, constantly evolving both in terms of pedagogy and technological advances in hardware and software." Numerous practitioners' applications of CALL have been published, which are often based on solutions found for their particular teaching needs, as can be seen in published articles in journals like CALICO, CALL, JALTCALL and ReCALL. However, the literature reviews on CALL research frequently criticised the validity and/or transferability of some of the research (Felix 2005, 2008; Hubbard 2005; Zhao 2001, 2003).

Studies in CALL are necessarily influenced by advances in technology because the technology itself is a very important factor in any CALL research project (Beatty 2003). These studies concern themselves with the use of newly emerged technologies for language learning purposes and have been referred to as emergent CALL (Levy and Stockwell 2006), opposed to established CALL (ibid) which does not concern itself with new technologies at the centre. Nevertheless, the technology itself, the computer and its capabilities and functions within the CALL task, are constituent parts and introduce important variables which cannot be easily captured in a comparative approach between face-to-face teaching and CALL. Chapelle (2000) critiqued the comparative approach focused on outcomes on the basis that CALL should not be considered as just another method of instruction if other factors

---

<sup>8</sup> The European Association of Computer-assisted language learning

<sup>9</sup> The Computer Assisted Language Instruction Consortium

<sup>10</sup> The International Association for Language Learning Technology

are not included. The introduction of the machine into the learning context changes the whole teaching and learning process fundamentally and therefore makes a simple comparison of outcomes, with the associated evaluation of methods applied, invalid. Secondly she critiques the omission of considering the value of instruction itself, including contextual factors (ibid).

It is accepted that the introduction of the computer to the language learning situation has a more fundamental effect on the learning experience than the introduction of other methods of teaching and learning (Warschauer 2004a, 2004b). It affects all elements of the learning process fundamentally and a plain comparison of outcomes from in-class teaching and computer-assisted learning cannot capture the multitude of factors involved. The study under consideration concentrates on the exploration of the case of the ERP as a manifestation of CALL and therefore necessitates a clarification of CALL as teaching and learning methods. The reader is referred to Figure 1 of the introduction and Appendix 1 which highlight how the case of this ERP is contextualised in pedagogy, CALL, SLA theory and task design considerations.

The following section will describe and discuss how CALL has been applied inside and outside class and which underlying pedagogical beliefs informed the teachers. Besides their pedagogical beliefs, teachers' and learners' acceptance of technology in general represents an important factor which can have an impact on the success of the application of CALL. The acceptance of technology by society, a changing variable dependent on time, will therefore be looked at too.

First, CALL as part of the language teaching and learning modes shall be discussed.

### **1.1 CALL as part of the language teaching and learning modes**

CALL has been defined in a very broad sense as an approach where learners engage with the computer with the purpose to improve their language (Beatty 2003). How this learner engagement with the computer may materialise in order to aid L2 learning has been interpreted in different ways during recent decades, which is reflected in the use of various acronyms. However, the term CALL has remained useful (Levy and Hubbard 2005) and has not been superseded by other terms, for example, web-enhanced language learning (WELL) or technology-enhanced language learning (TELL), even though recent years have seen a shift in the use of terminology with the introduction of the term blended learning when referring to technology in teaching and learning in general. The term blended learning (Bastiaens, Boon and Martens 2004) puts emphasis on the organisational form of the teaching and learning process, but in itself does not represent a pedagogical approach or specific type of task. Blended learning refers to a hybrid

form of learning, or combination of face-to-face teaching with out-of-classroom activity which involves the use of the Internet (and therefore the computer) with the purpose to engage the learner. Blended learning locates the use of the computer outside the classroom and can therefore not correspond with Bax' Integrated CALL, where CALL is part of every lesson. According to Garrison and Vaughan (2008:5), blended learning "*represents a restructuring of class contact hours* with the goal to enhance engagement and to extend access to Internet-based learning opportunities" (emphasis through italics added). As a result, language teaching may separate the traditional language skills and emphasise listening and speaking more in the face-to-face session, while reading and writing can be transferred to the time outside the classroom. The blended learning approach is usually supported by an institutional virtual learning environment (VLE) which the teacher can populate with tasks which correspond to teaching activities during face-to-face contact time. In an advanced form, blended learning can represent integrated e-learning, which refers "not only to Web-based learning but also to using the Web for learning in such a way that it is effectively embedded in a well-designed educational system with pedagogical, technological and organizational features that contribute to achieving its goals" (Jochems, Merriënboer and Koper 2004:xi).

Even though blended learning positions the computer outside the face-to-face classes, it still represents a constituent part in all forms of computer-assisted learning, irrespective of organisational decisions regarding the locus of learning (e.g., in class) and irrespective of the directedness of learning (e.g., WELL and TELL). The role the computer can take in learning shall therefore be elaborated.

#### 1.1.1 The role of the computer

Superficially, in blended learning, the computer represents initially an access tool to the Internet. The term does not reveal any other particular use or function of the computer. CALL, on the other hand, is a collective term which highlights the use of the computer in the process of language learning. The computer is the place where learning takes place, learning is assisted by the computer. However, similarly to the concept of blended learning, the term CALL does not specify how the computer assists learning. Depending on the specific activity, the computer can take the role as a tutor or tool (Levy 1997a), it can be the place where knowledge is situated, it can transmit knowledge, and it can have the ability to correct the learner, thereby taking a tutor-like function. As a general term, CALL does not determine or specify the computer's function in this process.

The tutor function includes the ability to distinguish between a correct and incorrect answer, hereby evaluating the learner's response (Levy 1997a) and 'teaching' the learner the accurate answer to a given question or task. Examples of

computers as tutors can be found, for example, in gap filling exercises and grammar trainers with a programmed correct response. If emphasis is put on the tutor function while using computers for language learning purposes, the term CALL has occasionally been replaced by computer-assisted instruction (CAI). The tutor function is usually found in software with specific tasks eliciting specific answers. At a very simple level, software may only indicate correct / incorrect answers while more advanced software may give comprehensive feedback with explanations for the correct use.

The computer can also assist in the learning process by becoming a tool for the user. The computer as tool may involve functions supplied by the software in use, for example, language specific spell-checkers. In this case, it can be argued that the computer takes on both functions simultaneously, as tutor and tool (Levy 1997a). A spell-checker can give the correct answer, thereby acting as a tutor. However, in many cases the options offered by a spell-checker can be inappropriate since spell-checkers are not advanced enough to take context fully into account. The options offered may be unsuitable in some contexts. In such cases, the user has to act as an expert for semantic content and grammatical context and decides on which lexical item or grammatical form to use. It can therefore be argued that in such a case the predominant function of the computer software spell-checker is that of a tool.

Additionally, the computer may provide the function of access tool to information by, for example, being a gateway to the Internet, the primary use in blended learning as defined above. As an access tool, it can open up limited or more or less unlimited access to information. For example, Internet access can lead the student to a virtual learning environment (VLE) which has been populated with task-relevant content (and was therefore vetted for relevance and appropriateness by the teacher), or it can lead to the world-wide web with its vetted and unvetted content. For example, on the Internet language learning material can be accessed which may have been created by experts in the field or enthusiastic language teachers who's material may not have been proof-read by peers.

Furthermore, computers as tools allow the learners freedom to use the machine for their purposes, for example, free text production. Computers as tools do not evaluate the learner's response, they rather act as "non-directive" and "neutral" tools which are not predetermined (Levy 1997a:181). The tool function can be extended to network-based language teaching (NBLT) where computers are networked for a specific learner group, either local or global (Warschauer and Kern 2000), who are often engaged in tasks based on CMC (Chun and Plass 2000; Leahy 1999, 2001a). CMC as a form of CALL has been used widely since the 1990s. With the widespread availability of broadband access and therefore easily available

Internet access, CMC, for example, in form of email exchanges or discussion forums could be utilised for language learning purposes (Beauvois 1998; Chun 1998; Fisher 1998; Lamy and Hampel 2007; Leahy 2001a; Little and Ushioda 1997 a+b; St. John and Cash 1995; Stockwell and Harrington 2003; Tella 1991, 1992 a+b; Vilmi 1995). Computers as access tools have become particularly prominent since the integration of the Internet into specific tasks. Referring to the integration of the Internet into computer-assisted language learning tasks, Felix (2002:12) stated that "these environments offer powerful tools, not simply for practising and reinforcing language structures, but especially for the creation of real-life learning tasks in authentic settings", a notion which is echoed by others who discuss the opportunities ICTs offer for language learning (Lund 2003; Tammelin 2004). Felix' statement goes beyond the question of the computer function in CALL, it also points towards the need for tasks being embedded in pedagogy. Her statement can imply two different underlying pedagogical approaches: Practising and reinforcing language structures can see the principal use of the computer as a place for drill and exercise and therefore would represent what Warschauer called Structural CALL. It may also reinforce language structures by exposure to rich authentic texts. The second part of the statement alludes to authentic discourse embedded in authentic real-life tasks being the principal use of the computer. It is this kind of function the computer takes in the ERP under consideration where a subject-specific task is designed to mimic professional life. In the ERP the computer is integrated into the task as a multifunctional tool. In the context of the ERP the term CALL shall be used for the integration of the computer into the language learning setting, where its primary function is that of a tool. The computer is also the place for interaction with others via the use of email. It is a tool to transmit messages and for access to the Internet in order to gather information, as well as gain access to online dictionaries. Through the access to the Internet, access to multimedia material becomes available and the creation of a meaningful authentic task is possible. Furthermore, in the ERP the computer is also the locus for text production. The word-processing software includes spell-checkers, but even though they do provide assistance in correct spelling, they are still seen here as a tool and not as a tutor.

This brief overview has highlighted that CALL cannot be captured with one definition. Rather, CALL can materialise in different ways, integrated into class activities or purposely placed in students' self study time. It can focus on the application of the computer as a tool or as a tutor. It can consist of software programmes or operate using the Internet. It can be based on open or closed tasks. However, effective CALL applications consist of tasks embedded in pedagogy and do not simply transfer known teaching paradigms to technology (Garrison and Anderson 2003; Warschauer 1999), as Garrison and Anderson (2003:8) comment:

[T]he content of a new medium is initially always an old medium. Thus, the first use of cinema was to record plays, and the first use of the Internet was mail. Likewise, the first educational application of the Net was to disseminate lectures and replace paper syllabi. Now, however, we are challenged to go beyond these early adaptations and develop pedagogy that exploits the capacity of multimediated communications and effective storage and retrieval of very large quantities of information.

For L2 learning purposes, the challenge to develop a pedagogy which taps into the opportunities opened by technology extends to the creation of tasks which open opportunities for meaningful L2 practice. CALL at its best needs to fit into the curriculum, address the student needs and is integrated into a pedagogical approach which takes SLA theory into account.

### 1.1.2 The role of pedagogy

Pedagogy has been defined "as 'intervention into thought and behaviour which is concerned to promote learning processes for intended outcomes'" (Bygate, Skehan and Swain 2001:1). Edwards (2001:163) refers to "a pedagogic act [that] involves those who are teaching in informed interpretations of learners, knowledge and environments in order to manipulate environments in ways that help learners make sense of the knowledge available to them." In order to promote learning, teachers have to balance learning aims and outcomes with teaching methods, while considering learner needs and interests (Levy and Stockwell 2006; Stockwell 2009). The decisions teachers make are influenced by their underlying beliefs regarding learning theory and pedagogy (Felix 2003; Matthiessen 2006). Teachers' beliefs tend to follow pedagogical trends in approaches, for example, teaching language classes based on collaborative learning, communicative learning, or emphasis on explicit structural learning. These beliefs in how learners learn best are then translated into how to teach or facilitate learning opportunities. If a teacher's understanding of how learners learn best is situated in a structural approach to language learning they would probably favour a teacher-centred method, concentrating on teaching. If, on the other hand, their understanding of learning is situated in constructivism they would place the learner at the centre, concentrating on facilitating learning opportunities. The difference between, and interdependence of, situating either language learning or language teaching in the foreground can be illustrated on the level of second language acquisition (SLA) with the example of a grammar class.

If, for example, a language class is organised with Krashen's natural order hypothesis (1985) in mind, grammar points would need to be introduced in line with that natural order of acquisition. Teaching grammar points outside that sequence could not have any major learning effects since they would be outside the learner's capacity to acquire them at that stage of their development of their

interlanguage. Efforts to teach phenomena which are beyond what the learner is ready to learn, would therefore have a minor if any effect at all.

The activities or tasks teachers set their students are therefore on one hand dependent on the teacher's understanding of how L2 is acquired and, on the other hand, embedded in the teacher's understanding of how students learn best, for example, in a teacher centred approach. As the example above shows, the decisions teachers take regarding tasks can be influenced by their beliefs how learners acquire a second language, how their learners' interlanguage develops. Tasks should be designed to be instrumental in facilitating learning. The interrelationship between tasks, outcomes and pedagogy was highlighted by Bygone, Skehan and Swain:

By definition it [pedagogy] therefore simultaneously involves decisions by teachers, action by learners and perceptible outcomes, both immediate and over time. *Tasks are a central element of language pedagogy*, and hence find themselves pivotally placed within this three-way relationship: their design can affect their use by teachers in the classroom, the actions of learners and the performance and learning outcomes. (Bygate, Skehan and Swain 2001:1; emphasis in italic added)

Bygate, Skehan and Swain position the task in the centre of pedagogical considerations and Levy and Stockwell (2006:240) go as far as stating that in many respects the question of "[...] how best to design and evaluate CALL materials is [still] the fundamental question for the field." The actual task design, including considerations in which setting it is to be performed, represent a central concern. While in the 1990s teamwork between software designers and language teachers was seen as ideal design collaboration for CALL material (Levy 1997; Davies 2010; Kohn 2009), it was acknowledged that CALL tasks should not be led by technology and what is possible to do, but by pedagogical considerations, supporting a learning outcome (Ritter and Rüschoff 2000; Felix 2002; Levy 2006; Liu et al 2009; Stockwell 2010b). Amongst other reasons, Beatty (2003) sees the lopsided approach to material design as a root cause for the inconsistent advances in CALL: Either the material design tended to be heavily influenced by the technological advantages without necessarily being underpinned by sound pedagogical principles or by teaching practitioners without much technical understanding.

Teachers can be instrumental in finding solutions to appropriate CALL task design. Levy (1997) encouraged practitioners to contribute to the pool of existing knowledge by publishing the findings of their solutions to local needs, for example, their own applications of CALL. Lamy and Hampel (2007) also encourage practitioner research and dedicate a significant part of their book to it, encouraging teachers to become researchers. The case study under consideration belongs into this context. The ERP task takes a central position (cf representation in Figure 1), influenced by task-based language learning as well as other manifestations of CALL.

It represents a language learning solution to local language learning needs. By presenting the ERP in the context of pedagogical considerations applied to CALL, as well as addressing questions of SLA and task-based learning (next chapter) the context of the case study of the ERP as manifestation of CALL is provided. The task's effect and effectiveness can be analysed within the context in which it is set, including the pedagogical underpinning. It thereby contributes to the empirical base of pedagogical approaches to CALL.

Studying manifestations of CALL at different moments in time can make trends in pedagogical approaches and prevailing beliefs in SLA processes visible which in turn can inform subsequent task design. Two main frameworks for language teaching and learning approaches using CALL were developed and frequently discussed during the last decade. These two attempts are represented in Tables 1 and 2. Table 1 shows the representation of prevailing trends during the second half of the last century, Warschauer's (2000b) three stages of CALL which are embedded in language learning. Table 2 shows a different framework by Bax (2003) which is rather concerned with the level of integration of CALL in the organisation of the actual language classes.

These frameworks are relevant since they not only make previous approaches to CALL transparent, but also assist here to position the electronic role-play in the context of the wider discussions about appropriate CALL applications.

## **1.2 Trends in pedagogical approaches to CALL**

The turn of the 20<sup>th</sup> to the 21<sup>st</sup> century seemed to stimulate rethinking concepts and taking stock of practice (Chapelle 1997; Pica 2000), a history of CALL (EuroCALL 2000) was published, scholars looked at applications of CALL and presented two significant attempts to conceptualise the interplay of pedagogy and CALL.

The first attempt was developed by Warschauer (2000b; Table 1) and refers to three stages of CALL, from the first stage of early technology of mainframe computers through to the second stage of PCs to the third stage of multimedia and the Internet. While earlier theoretical frameworks were influenced by behaviourism and led to decontextualized stimulus-response exercises (e.g., drill and practice), the communicative teaching approach produced exercises for communicative purposes, i.e. embedded in relevant context. The third stage in Warschauer's model is one of authentic discourse. In this way he describes the underlying language learning theory as one which is changing from the formal structural system to a cognitive and then socio-cognitive system. The type of exercises designed in support of language practice are influenced by the primary view of language learning taken in each approach, at each stage. Of particular relevance to

the context discussed here is the attempt to link the understanding of how language is learned with a subsequent teaching application. If the primary view of language is that of a structural system which needs to be acquired in order to produce accurate L2 structures, it influences the teaching paradigm and the principle method of teaching. If the primary concern is accuracy, the applied method of teaching will be based on repetitive practice of the correct forms.

**Table 1 The Three Stages Of CALL (Warschauer)**

Stage	1970s-1980s: Structural CALL	1980s-1990s: Communicative CALL	21 <sup>st</sup> Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and Internet
English- Teaching Paradigm	Grammar- Translation & Audio-Lingual	Communicate Language Teaching	Content-Based, ESP/EAP
View of Language	Structural (a formal structural system)	Cognitive (a mentally- constructed system)	Socio-cognitive (developed in social interaction)
Principal Use of Computers	Drill and Practice	Communicative Exercises	Authentic Discourse
Principal Objective	Accuracy	And Fluency	And Agency

(Warschauer 2000b)

This framework has been critiqued by Bax (2003) who suggests a different framework (Table 2) to that in Warschauer's model.

Bax' critique is based on several points, but in particular he objects to the understanding he has of Warschauer's three *stages* of CALL to mean clearly defined historic *phases*. It appears that this critique is based on a misunderstanding on Bax' part since Warschauer (2000b:64) clearly states that he does "not want to suggest that these *stages* have occurred sequentially, [...]. At any one time, any of these may be combined for different purposes. However, there has been a *general trend or development over the years*, with new ideas and uses of computers being introduced in combination with those previous" [emphasis in italics added]. Bax (2003) comes to a similar conclusion in his framework when he states:

Open CALL has lasted from the 1980s until today, with some Restricted CALL manifestations still observable and still valuable in their place (e.g., in grammar revision and checking). Integrated CALL exists in a few places and a few dimensions only, but is far from common, [...]. It is therefore possible to use this analysis as *a guide to broad historical developments in CALL*. (2003:22; emphasis in italics added)

Both authors acknowledge that the phases or stages of CALL cannot be seen with clear starting and end points on a timeline, but that there occurs overlap with the previous or following stage. A critique on the basis of timeline of one author on the other seems therefore unfounded.

However, Bax' attempt to anchor the approach to CALL in the past, present and future is useful in other ways, particularly because he also integrates the ideas of CALL's position in the curriculum, the position in the lesson and the physical position of the computer, as well as the teacher's role in the learning process. His model distinguishes between Restricted, Open and Integrated CALL. His first phase, Restricted CALL, is similar to Warschauer's Structural CALL.

Bax sees Open CALL as the predominant use at the moment (i.e. 2003 when the article was published). Here, the term 'Open' refers to the approach with which CALL is used, for example, in terms of feedback to students, software and role of teacher.

The term 'Open CALL' seems to be problematic though, since it does not appear to include openness regarding task types.

In Bax' framework, the future use of CALL is described as "Integrated CALL", hereby stressing that it is no longer an add-on feature, but an integrated part of the language teaching and learning process. CALL sessions would be a part of every lesson, and as a prerequisite, computers would be available in every classroom. Integrated CALL in Bax' sense "refers to the stage when the technology becomes invisible, embedded in everyday practice and hence 'normalised'" (Bax 2003: 23). He distinguished explicitly his Integrated CALL from Warschauer's (2000b) Integrative CALL (emphasis added).

---

**Table 2 The Three Phases Of CALL (BAX)**

Following Bax (2003:21); simplified table

Content	Type of task	Type of activity	Type of feedback	Teacher role	Position in lesson	Physical position of computer
Restricted CALL Lang. System	Closed drills and quizzes	Text reconstruction Closed questions Minimal interaction with other students	correct / incorrect	Monitor	whole CALL lesson	separate computer lab
Open CALL System + skills	Simulation, games, CMC	Interaction with computer, occasionally with other students	focus of linguistic skills development open, flexible	Monitor, facilitator	whole CALL lesson	separate lab – perhaps devoted to languages
Integrated CALL Integrated language Skills work Mixed skills and system	CMC WP email	Frequent interaction with other students; some interaction with computer through the lesson	interpreting, evaluating, commenting, stimulating thought	Facilitator, manager	smaller part of every lesson	in every classroom, on every desk, in every bag

CMC – computer-mediated communication

WP - word processing

---

While Bax strives for 'normalisation' where CALL is integrated into every lesson, Warschauer's Integrative CALL refers to another principal objective: added to the objectives of accuracy and fluency comes agency. Agency here refers to "the power to construct a representation of reality, a writing of history, and to "impose reception" of it by others (Bourdieu 1982:20) by virtue of being computer literate" (Kramsch, A'Ness & Lam 2000:97; Warschauer 2000b).

The link between underlying pedagogical beliefs (including the perceived student needs in terms of SLA), task design and exercises type is more clearly represented in Warschauer's model than that of Bax. Warschauer's model highlights the relationship between the teacher's view of how language is learned (by concentrating on a structural, cognitive or socio-cognitive view of language) and links this to the principal use of the computer and the principal language learning objective. For example, if a student needs grammar support, the underlying pedagogical beliefs of the task designer will influence what kind of exercise will be chosen in order to support the student's development in L2 structures, whether a formal structural system needs to be practised, irrespective of content, or structures should be practised in social interaction within content relevant to the student. Bax, on the other hand, is more concerned with the role of the teacher, classroom activities and classroom organisation, for example, the actual location of the computer. Bax does not consider the task design and SLA theory in detail, but simply states that e.g, Open CALL features simulations, games and CMC. Integrated CALL, the future stage where Bax sees CALL being embedded in the teaching process, only names explicitly CMC, word processing and email as activities involved in tasks. Within the article he does not link these activities to any learning objectives based on SLA theory. This view is limiting and seems to neglect the purpose for the use of technology in the first place. Why should students engage in computer-mediated communication? Which view of language learning underpins the activity? This reading of a limited view of CALL as represented in Bax framework is not changed by his statement that "CALL will be normalised when computers are treated as always secondary to learning itself, when the needs of learners will be carefully analysed first of all, and then the computer used to serve those needs" (2003:24). Since his article does not develop this statement further the emphasis of the paper seems to concentrate on class organisation and tutor roles rather than reasons for particular language learning task design. This impression is strengthened by a later article, co-authored by Bax (Chambers and Bax 2006) which follows the same theme, i.e. his understanding of normalisation of CALL.

These two frameworks are useful attempts to put approaches to pedagogy and CALL into relation to the technology available and the type of exercises

students are asked to perform, as well as the tutor role and location of CALL study. Both authors, Warschauer and Bax, relate their models to the language teaching practice and acknowledge overlap between stages. Both authors imply that the teacher plays an important role in deciding how to implement CALL to their teaching. This should, however, be a conscious process rather than a subconscious one.

Relating the ERP to these frameworks is helpful in order to position this manifestation of CALL within the wider discussions of CALL applications. Following Warschauer's model, the ERP would be positioned in the third stage: Integrative CALL. The principal use of the computer is to access authentic material which is then incorporated into authentic discourse, in spoken form between partners in dyads, and in written form via email, primarily, to others (CMC). The view taken here is of language (L2) which is developed in social interaction, embedded in task-based learning with emphasis on content, which is located in subject-specific knowledge. The Internet and multimedia represent the technology used. The principal objective of the CALL activity is to facilitate students to exercise their agency.

Both models taken together can capture the considerations which influenced the ERP and its integration into the curriculum. Bax' approach is useful in emphasising how CALL is integrated into language teaching and the classroom, and what kind of role the teacher takes. Following Bax' model, the closest match for positioning the ERP would be in his third stage: Integrated CALL. The ERP task incorporates CMC, word processing and email, while the type of activity encourages frequent interaction with other students, as well as interaction with the computer, which serves as the access tool to the Internet. In Integrated CALL, the traditional role of the teacher is replaced with that of a facilitator and manager of the class activities. In the case of the ERP, the CALL activity does not take a smaller part of the actual class (as suggested by Bax), but covers the whole lesson. Moreover, the ERP sequence consists of 4 sessions within the semester's programme; thus the CALL activity does not take place every week. Normalisation in Bax' sense has therefore not taken place: while Bax advocates future CALL in which computers are available in all teaching rooms, this is not the case at Nottingham Trent University and the ERP had to take place in a different room. For in-class CALL activities a computer room had to be booked instead of the regular seminar room. However, the ERP was integrated into the curriculum. Designing and planning such in-class CALL activities requires considering several elements of the teaching and learning process, as both models illustrate. Both Warschauer and Bax attempt to highlight the contributing elements, even though their emphasis differs: while Warschauer's starting point is SLA and learning theories, Bax concentrates on classroom delivery.

On one hand their models capture the practice of the time, and on the other hand they give an outlook to the future, positioning CALL in L2 teaching and learning.

Effective language teaching, as effective CALL, need to match the different factors of learner needs (Ehrmann, Leaver and Oxford 2003; Hoven 1999), learning theory and teaching methods (Levy 2006; Levy and Stockwell 2006; Lund 2003). Furthermore, it is evident that the application of computer-assisted learning (CAL) involving information-communication technologies (ICTs) requires a different pedagogical approach from traditional classroom teaching (Lund 2003; Tammelin 2004; Warschauer 1998; Webb and Cox 2004).

Besides the positioning of any CALL task into a pedagogical approach, the integration of CALL activities into the language syllabus requires an awareness of the acceptance of technology by the actors involved, i.e. teachers and learners as well as the teaching institution. Amongst the other factors named above and the role the computer itself takes, the effectiveness of CALL is dependent on the acceptance of technology by these participating actors. Minimal institutional support is a prerequisite to facilitate the implementation of CALL tasks at a level which goes beyond the 'novelty' treatment which was a characteristic of early innovations. Furthermore, from the moment CALL is introduced to the teaching and learning situation, the important factor of acceptance of technology to both the learner and the teacher comes into play. The level of acceptance of technology and its influence on the application of the same shall therefore be discussed below.

### **1.3 Acceptance of technology**

This section will look at the changing attitude of learners and teachers towards technology, and the level of acceptance in society as a whole. Time represents an important factor, since the last ten years witnessed decisive changes in the level of acceptance of technology in societies. The past decade has had considerable impact on the group of young and young adult learners. However, even though this decade has created a new Net generation, the generation of teachers and lecturers did not change equally as fast in their approaches to teaching. This phenomenon shall be explored now.

#### **1.3.1 Societal acceptance of technology**

The level of acceptance of the use of technology in learning processes on the part of learners as well as teachers and lecturers is changing all the time. In general, technology, in particular ICTs, has become part of modern life, for purposes in recreational time as well as at work. As Murray puts it, technology's impact on

society is dependent on society's readiness to make use of it, be this the historical technology shift introduced by the invention of the printing press or, more recently, the introduction of computers to learning, because "technology is not the cause of social or cognitive changes, but rather amplifies values and beliefs that a particular society currently holds" (Murray 2000:49).

### 1.3.2 Acceptance of technology on the part of learners

Once a higher level of acceptance of a technology in society has been reached, the acceptance of the same for teaching and learning purposes also grows. As an example, a student taking part in one of my previous email projects resented the use of email for language learning purposes and saw such activities as taking valuable time from other, more traditional, language learning activities. He did not accept that technology, for example, in form of word processing and email could be a tool for L2 learning and could become later an important part in his professional life (Leahy 2001a).

The last decade has clearly shown a shift in the acceptance of technology on the part of the learners (Ayres 2002; Oblinger and Oblinger 2005; Oxford and Oxford 2009). Young people in Britain are growing up with access to the Internet, to email, social networks and to mobile phones. Students we teach now are mainly "native"-like (Warschauer 2000b:3) in their fluency and ease with which they use technology and their acceptance and ease with which they adapt to very quickly changing technology and incorporate it into their lives (Beach and Doerr-Stevens 2009). In the late 1990s (the time the electronic role-play was used for the first time) the picture was quite different, students were still acquiring knowledge and skills regarding computer use in general, in part influenced by limited access: For instance, a small-scale project of 58 British and German students (19-22 years of age) discovered that only three of them had ever used chat lines before and only 55% sent more than four email messages per week, while 90% of the participants expressed that they liked email (Leahy 2000), partly mirroring a survey result from the US (Nie and Erbring 2000), conducted by the 'Stanford Institute of Quantitative Study of Society' which found that email was the most used function of the Internet with 90%. While the students questioned in my project expressed their positive attitude towards email, the US study reflects the realization of email as the main function of Internet access at that time. Both findings could be seen as promising indicators for effective use of email for language learning purposes. However, at that time the access opportunities were still limited. For example, during the late 1990s, only 69% of the participating students of the foresaid email project (British and German law and business students) had access to a computer at home (Leahy 2000).

In 2008, the availability and acceptance of computers as part of life had changed dramatically. Early 2008 (approximately ten years after the first use of the ERP) it was estimated that the UK's 3 biggest social networking sites had 17.6 million users between them; 8.5 million unique users of Facebook, 5 million users of Myspace, and 4.1 million users of Bebo<sup>11</sup>. In less than ten years a whole generation had embraced technology and was using it frequently, including children. According to a BBC report it was estimated that approximately 19% of youngsters in the UK had "a presence on a social networking site"<sup>12</sup>.

In comparison, in the late 1990s, the subject-specific email project mentioned above (Leahy 2000), highlighted how a lack of acceptance of technology manifested itself in a participant's negative attitude towards computer-based learning. It showed how this non-acceptance could have a detrimental effect on the project and the individual's learning opportunities. This was exemplified by one student who insisted on viewing the project as primarily practising IT skills rather than accepting the given task as an opportunity to exchange subject-specific ideas in L2 with a law student in Germany (Leahy 2000). The negative attitude towards technology was caused by the lack of IT skills, the unfamiliarity with and non-acceptance of technology had the effect of denying the student learning opportunities.

The same study (Leahy 2000) highlighted a significant shift in attitude towards technology as a language-learning tool by another participant who could eventually see the merit of the email project and turned resentment into a positive learning experience. The individuals' perception of technology was the decisive factor in making the computer-assisted learning experience a positive or negative one (Leahy 2000). If the introduction of technology is seen as imposed from the outside, it is less likely to be accepted. Tella phrased this idea as follows: "Technology should serve the users, not master or dominate them" (Tella 1991:96), a sentiment supported by Cooper (1999). Clearly, the student who could eventually accept the email project as an opportunity for bilingual negotiations (Leahy 2000) could then view the technology as a tool to serve her while another student experienced technology as a dominating factor imposed on him and rejected it.

The examples above highlight the possible consequences for a learning project if some participants reject the learning mode. Here, the introduction of technology led to occasional student frustration and resentment among a very small minority of the participants, but which had a significant impact on the whole group.

---

<sup>11</sup> Figures are based on the Internet research company *Nielson Online* as cited in *The Guardian* online, "Facebook sees first dip in UK users", 21/2/2008.

<sup>12</sup> "Children flock to social networks" BBC news 2/4/2008 at <http://news.bbc.co.uk/go/pr/fr/-/1/hi/technology/7325019.stm>

A more positive outlook would concentrate on the learning opportunities the introduction of technology can bring, in the words of Barson, Frommer and Schwartz (1993:584) the "question is not [so much] what technology can do to students, but rather what the students can do with technology". The latter idea stresses the opportunities technology may offer to students who keep an open mind towards the tools introduced to the learning process. To find out more about how these tools can be appropriated by students, and to explore what students do when engaged with the computer is a research goal of this dissertation.

As shown above, on the part of learners, their varying familiarity with technology can be a factor for resentment towards it, which, as a result, can have an impact on its effectiveness for teaching and learning. The same can be true for teachers (Murray 1999).

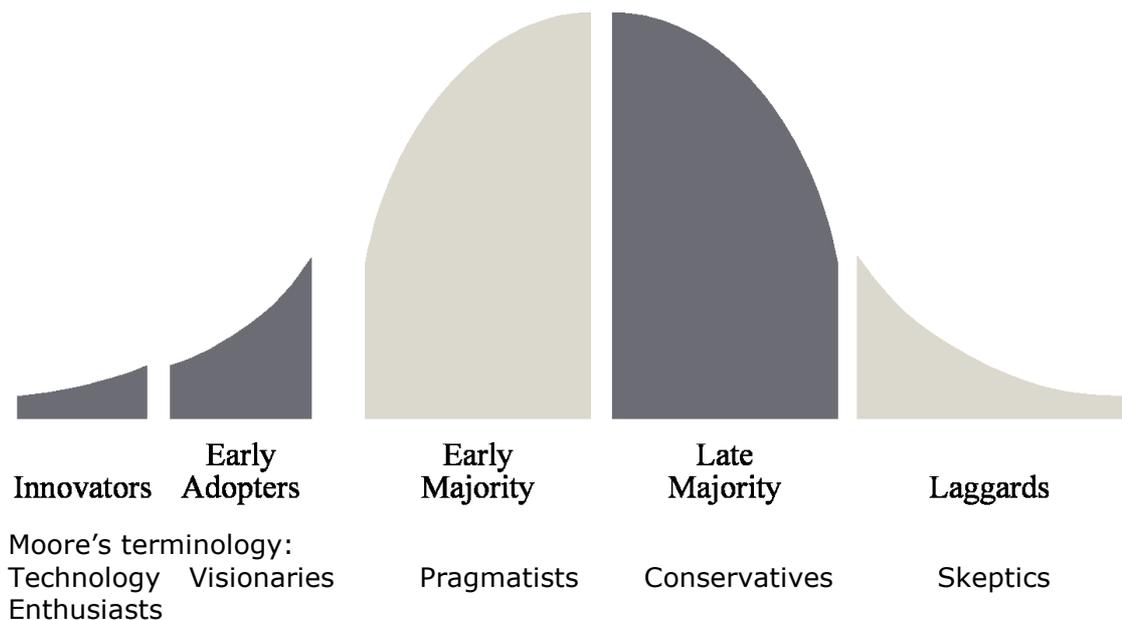
### 1.3.3 Acceptance of technology on the part of teachers

Teachers' attitudes towards technology are important, both in the school sector as well as HE. Teachers' attitudes can determine if CALL is used at all and how it is used, whether CALL applications are embedded in a cohesive pedagogical approach (cf. Webb and Cox 2004). Teachers' possible hesitation regarding the introduction of CALL to their teaching can have several causes. It may be rooted in a lack of familiarity (which may be related to their age) or teachers may be too conservative for change (Underwood, Cavendish and Lawson 1996). They may perceive a lack of time caused by competing work pressures hindering them to get involved (Gillespie and Barr 2002; Chambers and Bax 2006) or teachers may have concerns about technical difficulties, which could occur (Jaeglin 1998; Chambers and Bax 2006).

Furthermore, resistance to the introduction of technology can be caused by the low face value technology itself can have. Underwood, Cavendish and Lawson refer to research conducted by Watson (1993) to illustrate this point. Watson's

research suggests that those characteristics that make a teacher an enthusiastic IT user appear to inhibit colleagues from emulating them. The normal pattern of spread for an innovation is disrupted in terms of IT take up in that the majority of the profession seem unwilling or unable to follow early adopters. (Underwood, Cavendish and Lawson 1996:209)

The recognition that early adopters are not necessarily setting a benchmark for fellow teachers is mirrored by Tammelin (2004) who sees similarities to the technology adoption life cycle based on Moore (1991). It was originally applied within the context of business and industry (Rogers 1983; as cited in Tammelin 2004:11) and then to higher education in Finland.



**Figure 2 Technology Adoption Life Cycle**

Based on Rogers (1983), developed by Moore (1991/1999), cited in Tammelin (2004:11), reflecting people's characteristics.

---

Moore developed Rogers technology adoption life cycle and applied it to the educational context and ICT-based materials. As represented in Figure 2, in the beginning, only a small number of technology enthusiasts develop ICT-based teaching material. They are followed by still a small number of early adopters or visionaries. Thereafter, technology-enhanced teaching becomes mainstream and is taken up initially by the early majority (the pragmatists), then followed by the late majority or conservatives. Some laggards or sceptics follow. According to Tammelin (2004:11), Moore highlights the gap between the segments, particularly between the early adopters and the early majority, which "typically goes unrecognized". She continues that

[i]n connection with the launching of a new technology product, the successful development of a high-tech market faces the crucial test of making the transition from an early market to the mainstream market dominated by the representatives of the early majority who are predominantly pragmatists in orientation. Similar in the context of higher education, closing the gap between the early adopters and the pragmatists is crucial from the perspective of the faculty's effective adoption of technology. (ibid:11-12)

Nevertheless, it seems there can be several obstacles to this closing of the "gap". It appears that the success of technological innovations of the early adopters "can actually have an alienating effect" on the early majority who may feel uncomfortable with the expectations this can cause (Tammelin 2004:11), a sentiment which is echoed by Watson (as cited in Underwood above). Furthermore,

the success of technological innovation may not translate into institutional recognition. The lack of recognition for the development of CALL materials can be seen as hindering teachers to get involved (Levy 1997). Similarly, CALL-based research may be perceived as less valued, for example, in terms of the Research Assessment Exercise (RAE) in the UK, or its replacement, the more recent Research Excellence Framework (REF). In the context of British universities, lecturers may concentrate their research efforts in areas other than CALL (Gillespie and Barr 2002) because of the low 'status' CALL research entails.

Chambers and Bax (2006) identify further inhibiting factors for the use of CALL in class, or for the "normalisation" of CALL. Among these factors are a common separation of the actual spaces where face-to-face teaching and CALL tasks take place and a separation between CALL and non-CALL activities which is often also reflected in a lack of integration of CALL activities within the syllabus. While Bax (2003) and Chambers and Bax (2006) argued for a normalisation of CALL which would make CALL a regular activity in every lesson, the more recent shift to blended learning is a move in the opposite direction, since learning with technology and traditional face-to-face teaching are purposely separated, in terms of physical space as well as time and presence or rather non-presence of the teacher. The blended learning approach may therefore be seen as another factor which could have a similar inhibiting effect on the normalisation process of Integrated CALL in general, since it purposely separates the application of technology and face-to-face teaching. On the other hand, the use of a blended learning approach does not put the teacher on the spot to deal with technology in class and therefore may encourage a gentle introduction to the use of technology for less confident teachers. From that perspective, the blended learning approach could be seen as an encouragement to teachers who may be happier to ask students to fulfill technology-based tasks outside class. Any technical issues which could possibly arise could thereby be referred to others, for example, language resource centre or library staff.

Beyond this rather individual perspective regarding some teachers' hesitancy of adopting technology, Tammelin (2004) discusses three obstacles to educational ICT innovations, namely (1) the time span involved in institutional change, (2) institutional policies and contexts not being supportive enough, and (3) a lack of commitment. For example, commitment would become evident by providing teacher training. Quoting Kershaw (1996), Tammelin (2004:16) highlights that "there must be a clear focus on the people who use the technology, not on the technology itself". It becomes clear that besides individuals' commitments (as specifically mentioned in, e.g., NTU's strategic plan) there is also a need for institutional commitment which is underpinned by training (Stockwell 2009). Combining the narrow, more individual perspective with the broader, more

institution-based perspective, Tammelin (2004:16) points out that "neither centralization nor non-centralization works and [...] both top-down and bottom-up strategies are necessary." As Figure 2 shows, bottom-up approaches tend to be provided initially by enthusiasts and visionaries before more teachers (the early majority) get involved. Early adopters and innovators cannot refer to tested pedagogies for technology-enhanced language learning. They are confronted with a lack of an empirical base.

With the increasing acceptance of a society based on information and communication technology (ICT society) the country's culture changes too (Forstner 2000). As technology changes society and vice versa (Murray 1999; Oblinger and Oblinger 2005; Oxford and Oxford 2009), so do change the goals and expectations of the students (Leahy 2001c; Levy 2000). The necessity to embed technology into teaching becomes more widely acceptable, even expected on the part of the technology-"native" students (Oxford and Oxford 2009; Warschauer 2000) and the call for integration of technology into teacher training becomes louder (Arnold and Ducate 2006; Cannings and Stager 2003; Hampel and Stickler 2005; Hubbard 2008; Johnson 1999; Lam and Lawrence 2002; Leahy 2006; Littlemore 2002; Sercu and Peters 2002; Webb and Cox 2004). As a possible solution, it seems appropriate to draw on teachers with CALL experience to inform teacher training for the future (Meskill, Mossop, DiAngelo, and Pasquale 2002), to integrate CAL features into teacher training (Arnold, Ducate, Lomicka and Lord 2005), or to help teachers teaching themselves the necessary skills (Stockwell 2009).

However, the change in a country's culture, particularly in the higher education teaching culture, does not have to happen smoothly and consistently involving all participants simultaneously. For example, age can be an important factor whether an individual embraces technology or not, and masters it easily. As mentioned above, social networking sites are reaching very large groups of younger people. Many teachers on the other hand, are not embracing technology equally for their teaching and learning purposes. The technology adaptation life cycle discussed above illustrated this. Teachers' age may be a factor contributing to the take-up of technology in their teaching, as would be also suggested by a study conducted with a very small number of interested teachers in Japan which found that the younger teacher reported the highest experience with technology, while the older subject reported the lowest (Stockwell 2009).

In education, Britain is moving towards a society with high acceptance of information and communication technology, as can be seen in changes of recent years which include institutions also embracing the advantages technology may offer. Universities deliver courses via VLEs, and supply computer rooms for students' self study. For example, in 2007, NTU provided approximately 1000

personal computers to students in open access areas<sup>13</sup>. Students are actively encouraged to support their work with technology, for example, via Internet research, CMC in form of email communication or discussion forums with peers and tutors, or just word processing coursework.

However, such encouragement is not always complemented with pedagogically underpinned tasks. Britain and Liber highlight the need for more pedagogical underpinning of tasks involving the institutional VLE.

[...] for VLEs to begin to have greater impact on teaching and learning activities, we suggest that staff are in need of a higher level of professional development than they are currently receiving if they are to use the new VLEs for anything beyond routine administration: course announcements, lecture notes online and a list of Internet links. Even where lecturers are setting up discussion threads but with little understanding of how to engage students, how to structure their online interactions, or how to integrate these aspects of the course with other learning activities, their efforts have limited impact on students' learning experience. Part of the problem (in HE) is that lecturers often do not view themselves as teachers or their role in educating students as teaching. Where this is the case it is as much an issue of identity as engagement or professional development. (Britain and Liber 2004:4)

This assessment by Britain and Liber as expressed in the quote above is supported by Raby's findings (2010) which show that the view teaching staff has of themselves can be a determining factor in their motivation and eventually the (un)successful integration of technology in the learning and teaching process.

The actual application of technology for particular purposes often falls into the domain of the individual tutor. This is also the case at Nottingham Trent University which is committed to using technology for teaching and learning:

NTU is committed to providing students with a rich and blended learning environment and will use on-line technologies to enhance learning outcomes for all students, whether on-campus or studying at a distance or by flexible mode. (NTU Strategic Plan 2004-10, updated October 2007, p. 30)

and states in its strategic plan

Good practice in on-line learning is realised through a combination of collaborative environments and interactive resources that engage the learner. E-learning will complement existing forms of learning including printed material and will *rely heavily on the inspirational and professional commitment of teaching staff*.

The achievement of appropriate learning outcomes should be the primary consideration in any redesign of programmes or modules to incorporate on-line elements. [...] The use of on-line technologies will not be uniform across the University, to reflect the diversity of the student learning experience and different pedagogies. (Strategic Plan, updated October 2007, p.31; emphasis in italics added)

This freedom for innovation, as stated in the strategic plan, allows individuals to experiment and develop specific solutions to their students' specific needs, so-

---

<sup>13</sup> NTU's strategic plan 2004-10, updated version Oct. 2007. Unfortunately, records were not kept going back to the 1990s: It was not possible to establish the number of computers for student use at NTU in the late 1990s.

called "grass roots'-driven innovations" (Tammelin 2004:10). However, the policy speaks of "the inspirational and professional commitment of teaching staff" which does not appear to have built in either professional support in form of organised teacher training for all, or time for development of innovational ideas. Nevertheless, it should be acknowledged that there are mechanisms built into NTU's strategic plan which enable individuals to apply for project funding internally. Typically, successful bids release the applicant from other duties to a degree which is hoped to enable the applicant to develop their project<sup>14</sup>. Whether this approach will be instrumental in facilitating change beyond the local application remains to be seen. Early indicators suggest that more needs to be done to support innovations in teaching in order to make these technology-enhanced applications transferable to other disciplines and thereby more main stream.<sup>15</sup>

As shown above, there are indicators that the use of ICTs and technology-enhanced learning has been increasingly embraced during the last decade. Society has accepted the use of technology in most areas, be this banking or shopping, making travel arrangements or social networking. Young people are referred to as the Net Generation (Oblinger and Oblinger 2005; Oxford and Oxford 2009) who are computer literate. Educational policy makers have equally embraced the concept of technology, in particular in providing institutional learning platforms, VLEs or managed learning environments (MLEs), in order to enhance the students' learning experience. But the actual application of technology-enhanced learning in general is still mainly left to the individual with their "inspirational and professional commitment" (NTU's strategic plan). Moving from the general to the specific, from HE in general (Britain and Liber 2004) to language teaching with technology, the identified lack of pedagogical underpinning in many tasks has led to a call for improved teacher training on one hand. On the other hand, it has led to encouragement of practitioners to experiment and find local solutions, to research and publish the outcome in order to increase the pool of knowledge regarding language learning and technology. The latter is also reflected in the number of journals dedicated to CALL, for example, CALL, ReCALL, JALTCALL, CALICO and in form of conferences, for example, CALL, EuroCALL, JALTCALL and WorldCALL.

Individual practitioners have to work within the framework of institutional policies and the computer literacy of their learners. By virtue of the fact of time passing and institutional policies changing in favour of technology-enhanced learning, educational innovators can be absorbed into the mainstream.

---

<sup>14</sup> normally up to a max of 6 weeks.

<sup>15</sup> cp to NTU's Teaching in Learning conference in April 2009, particularly the paper by McNeil, Meredith and Moss "Mind the gap: Bridging individual and institutional aspirations for learning."

The effective use of technology in language learning is also dependent on the teaching and learning theory/ies underpinning the learning situation. Two frameworks for applications to CALL have been discussed above. The following shall explore learning based on social interaction, the specific approach that was taken in the ERP.

#### **1.4 Sociocultural perspective on second language learning**

The sociocultural perspective on SLA (Lantolf 1994; Lantolf and Poehner 2008; Lund 2003) is generally associated with Vygotsky (Mitchell and Myles 2004, Lantolf and Poehner 2008). For the purpose of this thesis, the expression 'sociocultural perspective' shall be understood in two complementing ways. Firstly, in very general terms, it refers to knowledge being associated with "the cultural and historical background of the learner and the setting in which it is embedded" (Lund 2003:56). Secondly, in the context of this thesis, the term is understood as learning being a collaborative process which is socially mediated. In the following, this will be referred to as collaborative learning.

##### **1.4.1 Collaborative learning**

Collaborative learning is based on the idea that the social interaction with others supports the learning process (Gass, Mackey and Pica 1998) and can be utilised, for example, in computer-based discussion forums (Schellens and Valcke 2006). Linking collaborative learning with CALL, Murray (2000:49) states that "[...] computer technology has facilitated trends already present in pedagogical theory - collaboration (or cooperative learning) as a means of learning, a focus on process rather than product of learning, a view of writing as a social, reader-response theory, and the teacher as mentor-coach rather than purveyor of received knowledge." She uses the terms collaborative and cooperative learning interchangeably, but some authors prefer to see these as two different processes, for example, on the basis that cooperation "involves a division of labour in achieving a task [...] cooperation is either synchronous or asynchronous" (Katz and Lesgold 1993:289). Collaboration, on the other hand, would refer to synchronous work on a task (ibid) amongst several people in order to solve a problem or create an outcome, for example, product. It is arguable whether such a division is helpful. Both approaches have in common that students work in small groups towards a mutual goal. It is in the interest of groups, underpinned by the task design that all members are involved equally and work towards the common goal. Group members are normally rewarded together and less on an individual basis (Dörnyei 1997). For the purpose of this thesis, such a distinction between collaborative and cooperative learning is not helpful and shall therefore not be made. The ERP is a classroom

activity and takes place synchronously, the groups work collaboratively towards a common goal. In collaborative learning, the learning process is not seen as primarily transferring knowledge from the teacher or institution to the learner, but a process of acquiring knowledge and skills through interaction with others and including the construction of knowledge together (Tammelin 2004). Similarly, choices regarding, for example, primary materials to be studied are not exclusively made by the educators anymore, but students may be given the opportunity to choose their own. This is increasingly the case when the Internet is part of the learning framework.

As a pedagogical approach, the concept of collaborative learning manifests itself in constructivism and complements the idea in SLA theory that interaction in L2 can support the acquisition of language. The so-called interaction hypothesis (Long 1981) can be seen as an extension of Krashen's input hypothesis (Mitchell and Myles 2004). The latter is based on the notion that comprehensible input is a prerequisite for SLA, while the interaction hypothesis extends that proposition to include the negotiation of meaning as an enhancer to L2 learning (Gass, Mackey and Pica 1998). In collaborative learning, the process character of learning is stressed. Collaborative learning draws on the idea of Vygotsky's "zone of proximal development" (ZPD), an optimum area where learning can occur. The ZPD represents the distance between what a learner can do on his/her own accord and that, what he/she can do involving collaboration with capable peers or the teacher (Schinke-Llano 1993) or in Kaufman's (2004:304) words the ZPD "embodies the learners' readiness to learn. It is the distance between the learners' actual developmental level and the level of their potential development" or in short, "[i]t refers to the learner's potential as opposed to actual level of development" (Ellis 2003: 353). Vygotsky's influence can also be seen in constructivism.

#### 1.4.2 Constructivism

Laurillard (2002:67) described constructivism as "a broad church, encompassing all educators who reject the 'transmission' model of teaching or anything that sounds non-cognitive." Collaborative construction of knowledge forms the core of constructivism, in other words, "learners construct knowledge on the basis of their previous knowledge and [...] knowledge is an active process of construction" (Tammelin 2004:19). Furthermore, constructivism encourages and empowers the learner to take decisions and initiative in the learning process (Benson 2001; Tella 1991; Wolff 2002). Constructivism as an educational paradigm "has coincided with a shift in pedagogy away from teacher-centered information transmission models toward knowledge-centered and learner-centered approaches that focus on cognitive and social processes in learning" (Kaufman 2004:303; cf. Altmayer 2002; Edwards 2001; Laurillard 2002).

Constructivism as a pedagogical approach has an impact on the actual content the learners engage with, as well as the way in which they engage with it. While traditional teaching (including language teaching) prescribes the content in form of syllabi and particular materials (e.g., books) to be studied, a constructivist approach is based on content which is discussed (Laurillard 2002) and chosen by teachers and learners together, based on the learning outcomes which are more skill based on language learning (Wolff 2002:4). This concept supports open tasks which include an emphasis on skills, as reflected in the electronic role-play under discussion here, and facilitates the learner choice in actual application to a particular content. This is mirrored in the different products students in different years chose for their marketing strategy, i.e., a computer game, Walker crisps, a mobile phone, Christmas pudding and a pub chain.

The introduction to this thesis already referred to the problem that content in language textbooks can be perceived by the learners as being outdated (Ioannou-Georgio 2005). With the exponential growth of information and knowledge in modern society, a different kind of education may therefore be necessary which also takes into account that facts learned in early life may not be valid anymore in later life. Rather, education can be seen more as a life-long concept in which autonomous learning is essential (Altmayer 2002). Autonomous learning requires different skills from traditional learning based on transmission of information<sup>16</sup>.

Constructivist approaches to education may be part of a solution to these needs. As pointed out above, constructivist approaches see the concept of knowledge less as an accumulation of information which can be stored, transmitted, learned and called upon when needed. Rather, this approach to learning emphasises the use of authentic materials (Wolff 2002:12) with a view to working collaboratively with others in order to construct an outcome. Constructivist approaches to learning stress that the content should be meaningful to the learner and they should be involved in choosing it (Benson 2001; Wolff 2002). This principle was applied to the ERP. On one level, the electronic role-play concentrates on the traditional four language skills, on another level it practices higher order skills, for example, summarizing and synthesising information. On a third level it practises employability skills by mimicking a professional situation which involves team working skills<sup>17</sup>. But from the student perspective, the emphasis of the task is content-based, and the content is relevant to them, since they chose the particular product for which they develop the marketing strategy. Hence, the content is embedded in a subject-specific field of marketing.

The pedagogical approach of constructivism seems particularly promising for SLA tasks (Kaufman 2004; Wolff 2002) based on CALL and ICTs, since

---

<sup>16</sup> The notion of autonomous learning is mentioned in the context of motivation in chapter 2.

<sup>17</sup> Figure 5 gives an overview of the skills employed in the task.

constructivism shares with SLA theory a sociocultural perspective of learning based on Vygotsky and the ZPD. Constructivism's main activities are embedded in group or pair work (Wolff 2002) which complements SLA theory's negotiation of meaning in order to facilitate L2 learning (Barson, Frommer and Schwartz 1993; Ellis 1999; Long 1996). Furthermore, constructivism supports the notion of learner decisions on content and authenticity of the material (Wolff 2002), or in the words of Knuth and Cunningham (1993, as cited in Tammelin 2004:20), an "important aspect of this approach is the insistence that learning take place embedded in the contexts to which it is most relevant in everyday life and with which the students are personally involved". This is given in the ERP since the task is embedded in subject-specific knowledge combined with a product of their personal interest. This may not be applicable to all students of each year since only 1 group chooses the product and the others may not equally identify with that choice. They have however, the opportunity to discuss this and potentially change the choice of product.

Constructivism incorporates the notion of the learner constructing knowledge in form of a mental representation as part of the learning process. Learning is understood to be an active process, a very different concept from the notion that knowledge is imparted from the teacher to the learner through knowledge transfer. The electronic role-play is based on the concept of constructivist learning, in particular collaborative construction of knowledge. Viewing learning as an active process of learner centred construction of knowledge has an impact on the research method applied to evidence content learning. The outcome of constructivist learning through open task CALL requires different methods than knowledge transfer models which can be more easily investigated with pre- and post testing methods. This idea shall be discussed in the methodology chapter which will elaborate the approach chosen for this case study.

The idea of constructivist language learning shall be developed further in the next chapter, with particular emphasis on second language learning theory and task design questions.

### **1.5 Summary of chapter 1**

This chapter has highlighted some of the varying applications of CALL, the different functions the computer can fulfill and how it can be integrated into teaching or learning, in class and outside class. The introduction of two models of CALL application allowed the positioning of the ERP into Integrative CALL (Warschauer 2000b) and Integrated CALL (Bax 2003).

Attention was drawn to the importance of the acceptance of technology, in particular on the part of the learner and teacher, as well as the teaching institution. The importance of an institutional policy on technology-enhanced learning was

discussed and NTU's approach to e-learning was outlined. The chapter identified obstacles which may have caused the hesitancy in some HE teachers to adopt technology for teaching and learning in their subject. The chapter concluded with a positioning of the ERP in constructivism.

The next chapter will provide further contextualisation of the case study. It will elaborate the importance of SLA theory in language learning tasks and will introduce principles of task-based learning as applied to the ERP.

## 2 SLA theory and task design considerations

---

This chapter provides further context for the case study under consideration. It concentrates on the central role second language acquisition theory (SLA) takes in the task design considerations for the ERP. First, relevant hypotheses in SLA theory and learner factors, namely motivation, will be introduced. Second, these factors will be linked to the considerations for the actual task design. Third, a definition of task design is given, followed by an introduction to task-based L2 learning, embedding it in CALL. Finally, the ERP task itself is introduced and the skills employed are outlined.

---

One of the goals of this case study is to investigate the particular CALL task in relation to its potential in supporting language learning. Language learning is seen here as a sociocultural activity which involves interaction with others.

SLA theory takes a central position in this case study; it has an influence on a) the task design and b) the subsequent data analysis, as is shown in Figure 1. Methods for data generation and data analysis will be discussed in chapter 3. SLA theory also has an influence on the application of CALL. The issues relating to CALL research and pedagogical considerations (Figure 1, column on the left) have been discussed in the previous chapter.

SLA theory emphasises the importance of comprehensible input, modified language output, and focus on form. This chapter will relate these concepts to the design of the ERP task. Some of the cornerstones of SLA theory which are relevant for the ERP task shall be discussed.

First, the use of the central terms of second language acquisition (SLA) and second language shall be clarified.

Second language acquisition (SLA) or second language learning (SLL) can be broadly defined to include "the learning of any language, to any level, provided only that the 'learning' of the second language takes place some time later than the acquisition of the first" (Mitchell and Myles 2004:5). This definition does not distinguish between *foreign* language learning (L2 acquired outside the L2 community) and *second* language learning (acquired among the L2 community) or

whether this language represents indeed a second, third or any other subsequent language being acquired (Mitchell and Myles 2004). For the purpose of this thesis the terms shall also not be distinguished, but be used interchangeably, since a distinction between them would not add any clarification to the discussions in the context of this case study.

For the purpose of this thesis, the terms language learning and language acquisition shall be used interchangeably (Blake 2008). A distinction between the two was advocated by Krashen, who referred to the subconscious process as acquisition and the conscious one as learning (Ritchie and Bhatia 1996:16). Such a distinction is not helpful in the context of this thesis. As part of the ERP, students were exposed to considerable amounts of L2 input in form of authentic texts, for example, the task involved skim reading as well as in depth reading skills thereby creating grounds for the occurrence of incidental or unplanned vocabulary acquisition. Additionally, the use of, for example, electronic dictionaries encouraged the explicit and conscientious process of learning vocabulary. This study was not designed to distinguish between these two learning processes which are often researched via outcome tests. Instead, this case study concentrates on the learning process and explores whether likely conditions for L2 learning can be demonstrated.

## **2.1 Theory of second language learning**

Similarly to CALL itself (Hubbard 1996), SLA theory is a fairly young discipline (Gass and Selinker 2009; Krashen 2000a; Larsen-Freeman and Long 1991) which approaches the research of L2 learning from different perspectives based on different hypotheses regarding how language is acquired and which cognitive processes are involved in L2 learning.

The underlying assumptions of how L2 is acquired impact on the research methodology. The understanding of how second languages are learned can, for example, view the linguistic system at the centre (the universal grammar approach). The cognitive approach views the capacity and processes of the human brain at the centre, while the sociocultural perspective of SLA views the learning process as best situated in context and through interaction with others. Research tends to be embedded in one of the different SLA theories rather than attempting to capture the whole language learning process by including all theories in one model (Mitchell and Myles 2004).

For the purpose of this study, three theoretical approaches of SLA are relevant and will be discussed: (1) The principle of comprehensible input is integrated into the task rationale and a (2) sociocultural approach to language

learning influenced the task design. For the analysis of the students' L2 production, (3) output theory is applied.

Comprehensible input is regarded as an important factor in SLA, with the level of comprehension on the part of the learner affecting the potential impact on the learner's interlanguage. As stated by Mitchell and Miles (2004:164) "[i]t has always been obvious that comprehensible and appropriately contextualized second language data is necessary for learning to take place." Learning takes place when the learner's interlanguage is advanced. Interlanguage refers to the "language system of a second language learner at any stage in the process of second language acquisition" (Ritchie and Bhatia 1996:697). If input is too complex for the learner's stage of interlanguage, it cannot be processed. If the input is too simple, the learner cannot improve their level of interlanguage. If the level of input stretches the learner, the input can be processed, but the learner needs to make more use of, for example, contextual cues and needs to activate their L2 repertoire. Comprehensible but stretching input may create the potential for L2 learning (Ellis 1985; Larsen-Freeman and Long 1991; Plass and Jones 2005).

While research has shown that comprehensible input which also stretches the learner's interlanguage (i+1) is an important factor in SLA (Krashen 1985), some doubt has been expressed regarding the degree to which it can suffice in aiding SLA. In immersion classes, comprehensible input has shown to produce very high performance results comparable to native speakers in listening and reading skill tests (Long 1996), however, immersion students may not achieve a similar level of performance in active language production skills, i.e., speaking and writing (Hammerly 1987; Swain 1995; White 1987).

This phenomenon, the gap between performance in passive and active language skills in learners in immersion classes, has been interpreted as showing that comprehensible input alone may not be sufficient in assisting second language learning (Swain 1995; Crookes and Schmidt 1991). This gap may be due to several factors, one of which may be (subconscious) overgeneralization where L1 structures are transferred to L2 as discussed by Long (1996). The learner may persistently produce similar errors in their L2 production by mirroring L1 structures. If the inaccurate structures do not become salient, for example, through corrections by others, the lack of negative evidence does not alert them to the inaccurate use.

Long (1996) referred to a study by White (1987) which gave the example of French "*Je bois toujours du café* (\*I drink every day coffee)" where an adverb may be positioned between the direct object and the verb. He elaborated that

[t]he English speaker learning French should have no problem with the contrast because it involves adding an option that will be learnable from examples in the input (positive evidence). The problem is for French speakers learning English. The structure of French will lead them to produce verb-

adverb-direct object strings, and there will be nothing in the input (no ungrammatical utterances with asterisks) to tell them they are wrong. [...] White argued [that the prognosis for recovery is poor] because the ungrammatical utterances are perfectly comprehensible, and so will not cause a communication breakdown that might alert the NNS [non native speaker] that something was amiss. (Long 1996:424-5)

The same phenomenon as described for French above is true for German where similar word order problems could arise. It can be helpful for L2 teachers to be aware of this kind of possible influence of L1 on L2, leading to interference in L2 production as cited above. However, it is not an argument against the effectiveness per se that comprehensible input may have on the SLA process as hypothesised by others (Krashen 1985).

Furthermore, critics of the immersion approach in classes with L2 learners refer to the detrimental effect large amounts of inaccurate L2 input can have on learners. Students are exposed to their fellow students' utterances who are themselves at a level of interlanguage. One student's L2 output becomes another person's input. Ungrammatical L2 input may hinder the individual's linguistic progression (Hammerly 1987). However, in a language learning class all students communicate in accordance with their level of interlanguage. This fact should not lead to abolishing the L2 practice or the L2 delivery. Input represents only one of the factors which influence the language learning process, language practice in form of output represents another important factor. It may be questionable whether input alone could suffice in the process of L2 learning, irrespective of possibly having a very large pool of L2 material for input. For this reason, Skehan is critical of CALL tasks exploiting the Internet, which do not include a specific mechanism to focus the learner's attention on L2 form, since the learner may concentrate purely on content and avoid form altogether.

The central threat from an approach to exploiting web resources which doesn't take account of developments in SLA has already been mentioned [...]. It is that learners simply get the job done (extracting meaning from the limitless input materials; interacting minimally without pressure to change interlanguage systems) so that form is by-passed. Consequently, the major danger is that there will be insufficient pressures on learners to inhibit them from taking such an approach. It is important, in other words, that the proposals made in this last section [e.g., software which supports the Internet task] are researched, and their impact assessed. Only in this way can we establish whether web-based learning might have similar pitfalls to those identified in immersion education. (Skehan 2003:408-9)

According to this view, a development of the learner's interlanguage is unlikely, if their attention focuses only on content processing. Skehan proposes, for example, to incorporate software into the task, which could support the learners' attention on form. This view does not consider that language learning can also occur without encouraging learner attention on form through, for example, formal instruction. Instruction can be seen as a desirable condition for language learning since it

supports a focus on form (Willis 2004), but it is not the only essential factor (cf. Ellis et al 2008).

Focus on form may be learner initiated, incidental (Ellis et al 2002; Zhao and Bitchener 2007), as has been observed in studies exploring learner interactions. Several studies have examined the impact of negotiation within tasks (Barson, Frommer and Schwartz 1993; Doughty and Pica 1986; Ellis 1999; Fischer 1998; Gass, Mackey, and Pica 1998; Pellettieri 2000; Pica, Holliday, Lewis and Morgenthaler 1989). If a task is designed to initiate negotiation, negotiation may stimulate learner-initiated focus on form and may facilitate SLA. Long (1996:451-2) suggests

that *negotiation for meaning*, and especially negotiation work that triggers *interactional* adjustments by the NS [native speaker] or more competent interlocutor, facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways. (italic in original).

Long continues that negotiation of meaning may also aid SLA by making particular forms more salient:

Negotiation for meaning by definition involves denser than usual frequencies of semantically contingent speech of various kinds (i.e., utterances by a competent speaker, such as repetitions, extensions, reformulations, rephrasings, expansions and recasts), which immediately follow learner utterances and maintain reference to their meaning [...]. Such semantically related talk is important for acquisition for a number of reasons. The frequencies of target forms in the reformulations tends to be higher, as negotiation involves recycling related items while a problem is resolved, which should increase their saliency and their likelihood of being noticed by the learner. (Long 1996:452)

The interaction hypothesis (Long 1980), namely that negotiation of meaning may facilitate SLA (Chapelle 1998; Doughty and Pica 1986; Ellis 1999; Gass, Mackey and Pica 1998; Larsen-Freeman and Long 1991; Long 1996; Mitchell and Myles 2004; Pica 1991) was built into the ERP task by purposefully creating roles for the participants of the ERP which encourage negotiation. The study will explore whether L2 learning can be demonstrated while the students are engaged in negotiation of meaning.

After having discussed language input, the variable motivation shall be considered. In a simplified model of language learning, motivation represents one of three essential requisites for SLA: language input, language output and motivation, or in Willis' terms (2004) exposure, use and motivation. Without motivation, the learner will not engage in a task, will have no reason to communicate, to produce output.

## 2.2 Motivation

Motivation plays a central role in L2 learning. Without motivation to learn a language the learner will not engage in the process. The role of motivation in learning, the question of how student motivation can be enhanced and how students can motivate themselves in order to become autonomous learners, have been at the centre of research and teachers' concern for some time (Ushioda 1996). Interest in motivation as a concept has had different emphasis, and motivation has been looked at from different perspectives, for example, learner-inherent motivation to learn L2 (Gardner 1985), learner motivation and the L2 self (Dörnyei and Ushioda 2009), learner motivation, learner autonomy and control (Vansteenkiste 2010), learner motivation and individual differences in SLA (LoCastro 2001), learner motivation in general, not specifically related to SLA (Biggs and Tang 2007; Vansteenkiste et al 2009), teacher motivation (Raby 2010). Teachers' primary concerns may be how they can motivate their learners, thereby concentrating their input into maintaining, enhancing or improving the learners' attitude towards learning. Researchers on the other hand may want to find out more about what role motivation may play in the learning process and may be directed towards the question of empowering the learners to motivate themselves (Ushioda 1996).

The distinction between motivation as expressed in observable behaviour (e.g. perseverance at a task) as opposed to thought processes (e.g., learning goal of gaining or demonstrating ability) has been made (Ames 1986<sup>18</sup>). Thought processes, "motivational thinking" (ibid) can have a significant impact on the student's approach to language learning and the ultimate success in doing so. If effective motivational thinking can be enhanced or even learned, teachers may be able to help learners develop it and thereby help them to become more autonomous.

The degree of student motivation plays a significant part in language learning (Appel and Gilabert 2002; Clément, Dörnyei and Noels 1994; Dörnyei 1997; Dörnyei and Ushioda 2009, 2011; Gardner 1985; Leahy 2000; LoCastro 2001; Oxford and Shearin 1994; Ushioda 1996; Willis 2004). Therefore teachers and curriculum writers make an effort to either tap into perceived existing forms of motivation, for example, instrumental or integrative orientation (Gardner 1985) on the part of their students or they try to enhance student motivation externally, for example, by creating a task or framework which is focused on the students' interest. It is obvious that students' main interests can vary, depending on age, gender, sociocultural background etc.

---

<sup>18</sup> As cited in Ushioda 1996: 12-3.

Gardner (1985) distinguished between two forms of motivation which are related to language learning opposed to learning in general, and which are both student-inherent. His integrative – instrumental paradigm of motivation suggests “that language learning motivation differs from general learning motivation in that it crucially involves attitudes towards the ethnolinguistic community associated with the target language” (Benson 2001:69). In Gardner’s sense integrative orientation “stresses the social-emotional aims of learning the language in order to use it to communicate with the other community” (Gardner 1985:12). Instrumental orientation on the other hand reflects more pragmatic reasons for learning, for example, because it may be useful for a job. The understanding that knowledge of foreign languages may be advantageous in future work places or enhance employability in general, may in itself not be enough to provide the motivation for students to take up or to continue the study of languages. It can be argued that a rationale for studying foreign languages from within the curriculum can be far more powerful for students than to impose an external one (Fischer 1998).

The notion or concept of motivation has been distinguished (Oxford and Shearin 1994) from the idea of motivational orientation, thereby distinguishing between, for example, registering for a language class in the first place (motivational orientation) and then attending and working hard for the class (motivation). Motivation, as opposed to motivational orientation, has been defined by Gardner as

the combination of *effort plus desire to achieve the goal of learning the language plus favourable attitudes toward learning the language*. That is, motivation to learn a second language is seen as referring to the extent to which the individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity. (Gardner 1985:10; emphasis in italics added)

Here, Gardner names explicitly three elements, which constitute motivation, all of which are inherent in the learner. Firstly, the student needs to be prepared to make an effort to learn the language. Secondly, s/he needs to really want to achieve in the language learning process and reach the goal. Thirdly, the student needs to have a positive attitude towards the language learning process. Extending the concept of motivation to learning in general, rather than motivation for language learning specifically, Biggs and Tang (2007:32) name the “expectancy-value theory” of motivation which comprised of two qualities. The learning content has “to be important; it must have some *value* to the learner”, and the “learner needs to *expect success* when engaging the learning task” [italic in original]. Dörnyei extends the student-inherent motivational qualities for L2 learning and goes beyond the student by including external factors. He argued

that the motivational complex underlying instructed L2 learning is a multidimensional construct comprising at least three fairly independent levels: (a) the language level (concerning ethnolinguistic, cultural-affective, intellectual, and pragmatic values and attitudes attached to the target language and its speakers); (b) the learner level (concerning various fairly stable personality traits that the learner has developed in the past); and (c) *the learning situation level (concerning situation-specific motives rooted in various aspects of language learning in a classroom setting)* [...]. The most important impact of the CL [cooperative learning] process on learner motivation occurs at the learning situation level, but continuous exposure might influence motivational processes at the learner level as well. (Dörnyei 1997:48; emphasis in italics added)

Crucially, Dörnyei includes the classroom situation and thereby extends the motivational complex to factors outside the student. External motivational factors may include the use of technology, and may also be anchored in useful activities and tasks (Raby 2010:12).

The learning situation, including the introduction of tools, for example, technology, can influence student motivation, positively as well as negatively (Leahy 2001a). The impact of the level of acceptance of technology by society in general and students and teachers in particular has already been highlighted. It was reported that a negative attitude towards technology can lead to students denying themselves learning opportunities. In an earlier article, I gave the example of a British law student who initially failed to distinguish between, on one hand, the use of technology as a tool in order to engage in meaningful subject-specific electronic discussions (email) with German law students and, on the other hand, the use of technology for its own sake (Leahy 2001a). The student insisted on viewing the language learning task as an IT task and, as a consequence, was de-motivated because of the utilization of technology. A possible de-motivating effect of technology on the language learning situation was also reported in other early email projects. Email is usually conducted as asynchronous communication and a delay in receiving responses, possibly up to several weeks, can cause considerable frustration for the learners waiting for a reply (Fischer 1998; Vilmi 1995). A tight task framework, which inhibits student initiative and choice, can also lead to de-motivation (Warschauer 1999).

However, the introduction of technology to language learning can have positive effects on student motivation at different educational levels, schools, colleges and universities, as reported in other studies (Austin & Mendlick 1993; Beauvois 1998; Fischer 1998; Jaeglin 1998; Jeon-Ellis et al 2005; Pennington 1996; St. John & Cash 1995; Underwood 1997; Warschauer 1999).

The introduction of any new learning mode unfamiliar to the learner group, for example, CALL, may be seen as a novelty factor which could potentially have a motivating effect. But since the level of acceptance of technology within society continuously grows (Blake 2008; Oblinger and Oblinger 2005; Oxford and Oxford

2009), any possible earlier novelty effect caused by the (then new) medium will become increasingly irrelevant. Participants of previous ERPs expressed the motivating effect the CALL task had on them because the learning mode was new and different from other classes. But the present generation, particularly in affluent societies, is so technology-literate that a novelty effect caused by computer-use cannot be expected any longer, except, of course, through the fact that it can represent a change from other teaching methods, therefore be a novelty method in comparison to others, rather than in itself.

Technology can still enhance motivation for other reasons. For example, in early computer-assisted classroom discussions it was observed that the medium may have a liberating and empowering effect on some students who would normally be shy and contribute little (Beauvois 1998; Chun 1998; Jaeglin 1998; Sullivan 1998; Tella 1992a; Warschauer 1999). The lack of clues, for example, age, gender, clothing, voice projection, possible dominance of individuals in groups can have a positive effect on some students who may otherwise hold back in face-to-face communication (Blake 2008). Furthermore, the extra time asynchronous communication can provide for students to formulate their contribution can have an anxiety reducing effect (Arnold 2007). The examples above show that the question whether technology can enhance motivation to learn a language cannot be answered with either a simple yes or no, since "it is not the technology in itself that is actually motivating, rather the pedagogical project which went with it" (Raby 2010:12). Each pedagogical project is embedded in many factors and variables which do contribute to the project to motivate or de-motivate individual participants.

Designing the task for the electronic role-play, a combination of motivational factors as outlined above was hypothesised to affect the students concerned. When the task was first developed, instrumental orientation on the part of most students was assumed since they followed a degree with vocational focus. Their degree programme included an element of L2 study. It had been assumed that the students were likely to have a positive (at least not a negative) attitude towards the target language and its speakers since they had chosen the degree pathway with German. Additionally, the task framework was designed to match real life situations the students could experience once they had graduated, thereby mimicking professional life, and evoking students' future potential identities (Richards 2006). That fact in itself and the collaborative element of the task (which is reflecting team work as may be experienced professionally) were envisaged to enhance existing motivation. However, the type of motivational factors actually involved in the study groups was not researched, but rather informed assumptions were made initially in order to design the task. In this thesis the term motivation shall be used with general meaning, close to Gardner's definition (1985), i.e. involving volition and effort on the part of the learner to succeed in L2 acquisition.

The reasons behind possible positive attitudes toward learning L2 were not attempted to be unravelled.

The following sections will draw together the considerations discussed above which impacted on the actual task design.

### **2.3 Task design issues**

Willis (2004) argues that exposure to and use of L2, together with motivation, are essential requisites to SLA. The L2 input learners experience represents the exposure Willis refers to. Learners practise L2 by using the language, therefore by creating output. Task design aims to develop tasks which combine these two elements, input and output with the third element motivation.

According to Bygate, Skehan and Swain (2001:9), “[m]ost attempts to define the concept of task have taken a context-free approach. Such attempts have often proved unsatisfactory since they inevitably have a limited range of application.” Definitions of what might constitute a task are numerous. For the purpose of this case study, the understanding of ‘task’ is not context-free, but embedded in SLA theory and pedagogical considerations. Input theory and motivational factors known at the time the task was developed, informed the framework of it. The L2 input consisted of three elements: Firstly, input was provided by the L2 material students accessed through their research. Secondly, input consisted of fellow students' output, for example, incoming email communication from others as well as the partner's spoken and written output. Thirdly, input consisted of the teacher's language output, spoken communication as well as written task instructions.

Input based on the material accessed on the Internet was related to the students' subject specific knowledge which guided their choices regarding authentic material they researched. The ERP task aimed to mirror “natural communication outside class” and thereby achieve a level of authenticity and relevance for the learners (Chapelle 1999:103; Warschauer 2000b).

When the task is being referred to as ‘authentic’, this means that (1) the materials which are used for the task are materials from the real world which exist outside the classroom, for example, statistical material from a government website. Furthermore, (2) a similar or identical task can exist outside the classroom, i.e. in this case the production of an outline marketing strategy which is to be produced in collaboration with others. Such an approach corresponds with Laurillard's requirement for teaching in higher education contexts, i.e., “teaching must not simply impart decontextualised knowledge, but must emulate the success of everyday learning by situating knowledge in real-world activity” (2002:23). Authenticity in classroom activities aims to replicate or imitate communication as it

would occur in the real world (Chapelle 1999). However, the term authentic task does not want to suggest that the task in the classroom is identical with the task in the real world. The teacher and students alike are aware that the ERP only mimics an authentic situation, but is situated in the language classroom and does not carry the same consequences as the success or failure of a real employment situation. However, this understanding of authentic task can create relevance for the students and prepare for their potential future professional life. To practise a skill, for example, email communication, and the practice of the foreign language, gain significance through the task being embedded in the subject-specific context in which students intended to work in the future. Furthermore, the ICT-based CALL environment facilitates students to direct the task application into a direction in which their subject-specific knowledge merges with their own interests and with L2 practice which is actually meaningful. L2 practice ascends from mere L2 practice in any context, which may be very removed from any student experience to practice in context which is significant to students. If the task becomes significant, it can create the basis for a rhetoric of significance (Beach and Doerr-Stevens 2009). This understanding of the terms 'authentic' and 'authenticity' meets with Chapelle's criteria for CALL task appropriateness, which names authenticity as one of its elements. Authenticity in that sense "refers to the degree of correspondence between an L2 learning task and tasks the learner is likely to encounter outside the classroom" (Chapelle 2001:56).

The roles the learners had to fulfill aimed to facilitate negotiation and interaction (Gass 1997; Gass, Mackey and Pica 1998), and were informed by an interactionist approach to language learning (Long 1996). The requested task outcome guided the learners to produce modified language output, a requirement for L2 learning. Swain highlights the importance of the task itself and the varying degree of L2 output it may stimulate. As "conducive to successful collaborative learning" she names explicitly "thoughtful planning of the task, a rational approach to the construction of groups, accountability of each participant for the successful completion of the assigned task [...]" (Swain 1993:162). These prerequisites were built into the ERP task.

The ERP is based on an open task. Open tasks allow for an element of choice on the part of the learners, which corresponds with the pedagogical approach of constructivism. Constructivism explicitly requires that learners take part in the decision-making process regarding the content of their learning (Wolff 2002). Open tasks are less tightly structured than closed tasks and have a less specific outcome, i.e. "no pre-determined solution" (Ellis 2003:89). In other words an "open task is one in which there is no single correct answer" (Nunan 1996:358). Open tasks may consist of instructions of a general nature, for example, to exchange ideas on a given topic in L2 and to take notes.

Closed tasks, on the other hand, are tightly structured and have specific outcomes, for example, the working mode and time are given, as well as clear instructions, which specific activity learners are to perform and what kind of outcome they will produce (Willis 2004). A closed task "is one in which there is a single correct answer, or a restricted number of correct answers" (Nunan 1996:358).

Within this thesis the term open task is used in the sense outlined above, i.e. it allows the learner to make decisions and follow different, non-prescribed pathways in order to fulfill the task and reach the goal.

Having sketched some of the SLA, interaction and motivational factors which had influenced the approach to the task design, some further considerations regarding the practical application of the student activities, i.e. the framework of a role-play, shall be outlined below.

## **2.4 Role-play and language learning**

In educational research, role-playing has been defined as "participation in simulated social situations that are intended to throw light upon the role/rule contexts governing 'real life' social episodes" (Cohen, Manion and Morrison 2008:448). In the context of L2 classrooms, role-plays represent an opportunity to practise L2 in a meaningful context which mimics or simulates 'real life' situations. Role-plays can enrich communicative language learning and are widely used in language classrooms which favour the communicative language learning approach.

Role-plays create a framework for students in which they can communicate with one another, and practise their L2 within a range of semi-free to free compositions, depending on their level of proficiency and specific learning goal. Language material in the form of set phrases can be provided as scaffolding for the learner, for example, supplying phrases to book a room or defend a point of view. The situational framework and roles played by individuals need to be clearly defined in order to facilitate communication. For example, the given situation can be at a hotel reception, one student plays the receptionist, the other plays a customer wanting to enquire about a room for the night. The tasks and scenario are clear; the communication between the students is therefore at least semi-defined while there is some room for free text production. This kind of role-play aims to practise dealing with (semi-)free spoken L2 text production appropriate for given situations, is therefore more meaning-focused than form-focused and can put high demand on the student's cognitive abilities. Since the learning goal is directed towards meaning rather than form, less emphasis is usually placed on L2 accuracy in free text production, and more emphasis is put on the actual communication value.

The electronic role-play of this study is based on a similar principle as role-plays in the traditional L2 classrooms, i.e., communication in L2 with clearly defined roles and scenarios, and with a clear objective.

The specific purpose is that the role-play represents "a way of [...] integrating diverse subject matter" (Cohen, Manion and Morrison 2008: 453) which relates in this incidence to business studies, as well as SLA. Teachers teaching language for specific purposes cannot normally be expected to be subject specialists in diverse subject area, for example, law, marketing, or finance while also being the language specialists. In the kind of electronic role-plays as studied here, the teacher can concentrate on their role as L2 teacher, facilitating the appropriate L2 use, and can allow the students to act as subject specialists. The ERP therefore serves to integrate subject knowledge through subject-specific task-based learning with rich and, for the student meaningful and therefore potentially motivating, L2 input and output.

In the ERP, the concept of role-plays has been transferred from the usual face-to-face situation in the traditional classroom, into the computer room with access to the Internet. The electronic role-play incorporates roles enacted via the electronic media and should not be confused with a student-led Internet research for material to be incorporated into a traditional face-to-face role-play as mentioned by Ioannou-Georgiou (2005) or an online role-play. The term online role-play suggests an emphasis on the "connectedness" to the Internet which is not always relevant in the case of the ERP, even though Internet access also plays an important part. Access to the Internet facilitates access to ICT, i.e., primary information, to online tools, for example, electronic dictionaries, and to email communication. However, not all the ERP activities do require connectedness but also focus on, for example, oral discussions within dyads and individual report and summary writing, or the creation of a powerpoint presentation for which the computer is needed, but without the requirement to be online. The term ERP seems therefore more fitting for this activity than the term online role-play.

As part of the ERP, students act in different roles in class, including the role as researcher for information, but student-centred and content choices are student-led. On the other hand, simple student-led Internet research for material to be then integrated into a traditional face-to-face role-play does not change the student or teacher roles in class. In the latter scenario, the incorporation of the Internet serves as an access tool to information only. In contrast, the ERP goes beyond the simple access tool function, but also facilitates enacting given roles through email communication.

The electronic role-play is further extended with the concepts of task-based learning and collaborative construction of knowledge, embedded in a constructivist approach to learning. Task-based learning tasks can be tailored to the students' needs and area of special interest. The process of constructing the outcome collaboratively involves negotiation of meaning and thereby opens opportunities for language learning. A variety of skills are practised (Figure 5) and the balance between language input and output has been weighted differently at different stages of the role-play in order to avoid students' cognitive overload. Cognitive overload can be an inherent threat in Internet-based CALL activities, particularly if the learners' level of L2 proficiency is low and when the amount and level of language input is not controlled (Skehan 2003).

The electronic role-play was supported by a virtual learning environment (VLE) which served as a learning platform and was the basis for the entire module (not only the computer room sequence under consideration here). Students were therefore familiar with the computer as access tool to materials on the VLE. Task sheets could be accessed from there, links to, for example, electronic dictionaries and module content, recommended texts, links to external sources and access to university email were provided.

The electronic role-play and its theoretical underpinning will be outlined in more detail below. At first, the term 'task' will be defined and then the concept of task-based learning shall be discussed.

## **2.5 Definition of task**

Literature concerned with L2 pedagogy uses the term 'task' with varying degree of inclusion of different activities. The widest understanding of the term includes any exercise or activity referring to language practice, including grammar exercises, cloze tests, and learner language production, for example, essay writing and oral presentations. A more specific definition which would exclude any activity like simple true/false exercises and grammar tests is provided by Ellis. He defines a task as

a workplan that requires learners to process language pragmatically in order to achieve an outcome that can be evaluated in terms of whether the correct or appropriate propositional content has been conveyed. To this end, it requires them to give primary attention to meaning and to make use of their own linguistic resources, although the design of the task may predispose them to choose particular forms. A task is intended to result in language use that bears a resemblance, direct or indirect, to the way language is used in the real world. Like other language activities, a task can engage productive or receptive, and oral or written skills, and also various cognitive processes. (Ellis 2003:16)

The workplan mainly consists of the instructions or rubric, names the purpose of the specific task and its outcome (Ellis 2003). The definition above highlights the meaning-focus of tasks and that language is being produced in a non-prescribed way, chosen by the learners, even though the task may 'favour' some forms over others. The task can involve any or all of the language skills and the task outcome should reflect language use in the real world.

Willis (2004:23) puts forward a simpler definition of the term task in task-based learning when she refers to "activities where the target language is used by the learner for a communicative purpose (goal) in order to achieve an outcome."

For the purpose of the electronic role-play under discussion, an extended version of Willis' definition, but less comprehensive than Ellis' shall be used. I define task here as follows:

Tasks in the electronic role-play are meaning-focused L2 activities, involving all four language skills, which utilize authentic input in form of L2 language and content. Tasks serve a communicative and collaborative purpose in order to achieve an outcome, which is also informed by the students' subject-specific knowledge. Learners themselves negotiate and determine their learning paths and content within the given framework of the general task. Focus on form occurs spontaneously, mainly learner-led, according to learner needs, but is not prescribed.

Focus on form is therefore mainly learner-led, the task does not represent "planned form-focused activities" (Hampel 2006:113). Additionally, focus on form can be initiated by the teacher. Since the ERP is an in-class activity, I was present and could move between groups assisting students on focus on form, for example, if linguistic errors were visible in written compositions on screen.

## **2.6 Task-based language learning**

As established above, basic requirements for language learning in general consist of exposure to the language (input), as well as its use (output) and motivation on the part of the learner to engage with L2 (practice). Teaching can be seen as a desirable fourth requirement (cf. Willis 2004), which can focus the learner's attention on specific language forms.

The first three basic requirements (and optionally the fourth) are fulfilled in task-based learning (Ellis 2003; Willis 2004). Task-based learning centres on specific tasks as described above. Students are given instructions or a workplan in the definition used by Ellis (2003), which enable them to move towards a goal of varying specificity, depending on whether the task design is open or closed. The learner focus is directed towards meaning, the outcome is intended to reflect language (L2) as used in the real world. Skehan (2003) expresses caution regarding this approach, because forms on which the learner should focus are usually not pre-selected in task-based or communicative approaches. Instead, the

student focus would be directed towards fulfilling the communicative task, rather than focusing on form, which would create a risk that students do not make progress in L2 use.

Comprehensible input which stretches the learner just beyond what they are already capable of mastering and thereby remaining in their zone of proximal development (ZPD, Vygotsky 1978) can give the learner the opportunity to learn. Teachers' pre-selected forms are usually aimed to move beyond the students' level of interlanguage and therefore move into the students' ZPD, as reflected in the progressive development of L2 teaching. On the other hand, task-based learning focuses the mind on content and additional focus on L2 might lead to cognitive overload. Hence Skehan's suggestion (1996:42) that "it may not be possible to rely on a task-based approach to automatically drive interlanguage forward", if focus on form is neglected. He states that the "pedagogic issue then becomes how learners are supported, in this context, not to forget form. [...] As a result, the task-based approach has to incorporate pedagogic strategies to enable whatever language is needed to transact the task to then be capitalised upon" (Skehan 2003:393).

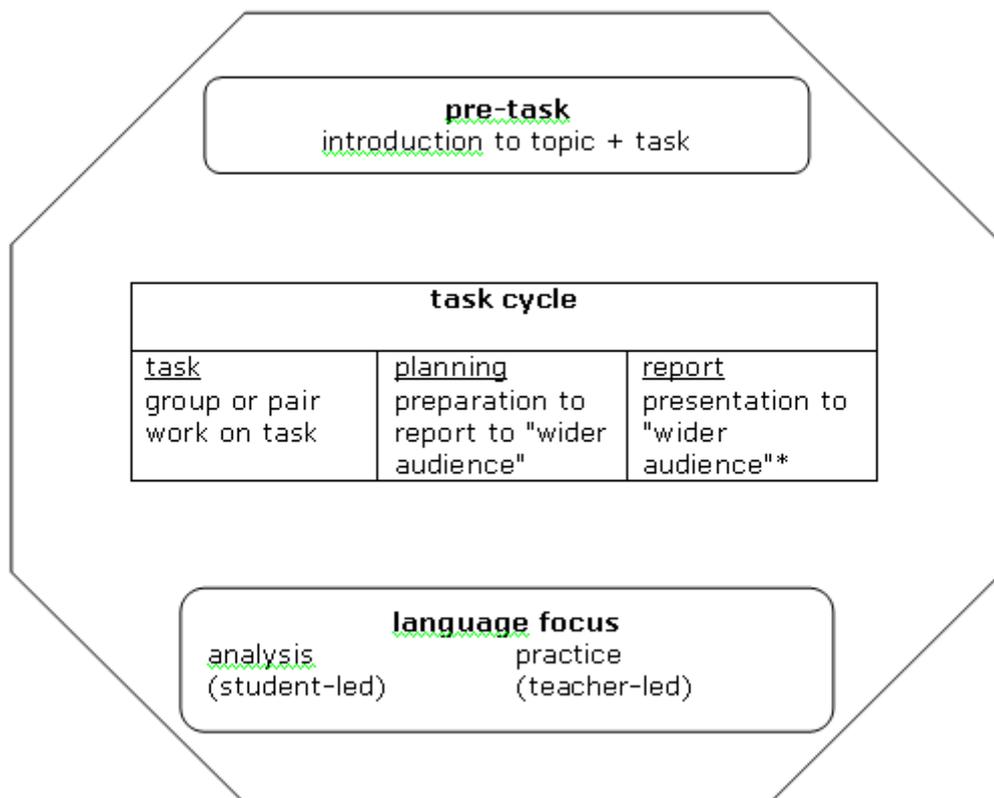
Even though task-based learning directs its main focus towards meaning, a focus on language can be incorporated explicitly at a different level, asynchronous from solving the task on the level of content. This concept is reflected in Willis' model. Willis (2004) proposes to guide students through the task-based learning process in three distinct phases: A pre-task phase, the task cycle itself and the third phase of language focus, hereby separating the phases when students deal explicitly with content or language. In this model, the pre-task phase serves to sensitise the students to the task they are about to perform and clarify any possible questions regarding the instructions or workplan, as well as providing some useful vocabulary.

The task cycle itself is divided into three sub-phases of task (fulfilling what the task requires), planning (preparation for reporting back to the whole group) and report (the actual presentation of outcome/s to other group/s). The third and final phase in the task-based learning sequences consists of specific focus on language. This phase can be separated into two sub-phases: one of analysis (student-led) and one of practice (teacher-led, see Figure 3).

It is noteworthy that the discussion so far has not considered the learners' level of proficiency. While this whole task framework with its three phases is suitable for beginner and intermediate language learners, particularly in schools and therefore younger learners, it is not necessarily applicable in the same form for advanced, and possibly older learners, for example, young adults at university. The ERP has therefore adapted the framework to fit young adult learners. In particular, the focus on form is student-led and not predominantly teacher-initiated. A

particular teacher-led practice phase is not appropriate in the context of this ERP and therefore omitted. Dealing with advanced adult learners who practise L2 in accordance with their own intentions, their own free will, i.e., non-prescribed, it would not be appropriate to introduce specific focus on form for all participants. Instead, focus on form is student-led and born out of specific contexts within dyads, as shall be shown in chapter 5.

The next section will apply task-based language learning principles to CALL.



**Figure 3 Simplified Task-Based Learning Framework**

(following Willis 2004:38)

\* Willis does not use the term "wider audience", but sees the reporting phase as part of the class work. In Warschauer's terms (2000b), it may be desirable and motivational for students if a larger audience may have access to the presentation, by, for example, publishing the results on the web and hereby fulfilling the concept of agency.

## 2.7 Task-based learning and CALL

Task-based learning can be combined with technology in numerous ways. For example, learners in two different locations could be set the task to discuss a current affairs issue via email (Leahy 2000, 2001a) or develop a project collaboratively. If appropriate, these open tasks could be made more specific and stipulate particular expected outcomes and thereby give more guidance to the

learners. A pre-task phase could introduce useful phrases (e.g. aiding discussion), during the post-task phase learners could focus on specific elements of language, which they came across during the main meaning-focused task cycle.

Another example is using the computer as a source for language learning material. Since the Internet offers access to an ever-increasing amount of authentic language materials, there are seemingly endless opportunities for task design. However, without careful consideration of how the access to varying input materials is to benefit the learner, the simple exposure to authentic language may not aid language acquisition since the level of complexity of input may not be appropriate to the level of interlanguage of the learner (Blake 2008). The computer as access tool to material and as place for interaction may not be sufficient for SLA if a guided focus on form is not built into the task design (Skehan 2003). Skehan expresses general caution regarding the Internet as source for L2 material, but does not appear to distinguish between L2 proficiency levels in learners. A proportionally higher focus on form may need to be realized for beginner and intermediate L2 learners than for advanced learners. In comparison to advanced learners, beginner learners' ZPD (Vygotsky 1978) is located at a lower level of proficiency. Similarly, comprehensible input ( $i+1$ , Krashen 1985) would be at a much lower level of proficiency in the case of beginner learners than for advanced learners. The Internet's authentic texts, on the other hand, are written for native speakers, and their usefulness for learners at a lower level of proficiency would at least be limited, but more likely lead to cognitive overload and therefore would not aid learning. However, the same authentic texts may come closer to the ZPD of advanced learners, and may therefore be at the appropriate level of stretching, but comprehensible input for them. Furthermore, advanced learners are not equally dependent on teacher guidance on form as beginner and intermediate learners. Advanced learners may need less teacher-directed focus on form, a possibility which is not explored by Skehan (2003).

The above points towards the usefulness of designing tailor-made tasks for specific learner needs, and points therefore to a distinction between different levels of proficiency which have to be addressed by the task.

Tasks, as defined in task-based learning, are primarily meaning-focused and require

the participants to function primarily as 'language users' in the sense that they must employ the same kinds of communicative processes as those involved in real-world activities. Thus any learning that takes place is incidental. In contrast, an 'exercise' requires the participants to function primarily as 'learners'; here learning is intentional. (Ellis 2003:3)

The different foci in tasks and exercises therefore correspond with the different emphasis put on form. In order not to 'neglect' focus on form, Willis' model of task-based learning (Figure 3) introduces a final phase to the task cycle which deals

exclusively with form. This phase complements the preceding meaning-focus part of the task which emphasised semantics and communicative processes over form.

Task design has to be seen in its context: In a broader context, it is an issue for syllabus design to create opportunities for natural language output for the real world, which aid complexity, accuracy and fluency (Skehan 2003). Within a narrower context, the learners' level of proficiency has implications for the actual task design. Besides a pre-planning stage, a post-task, for example, reporting back, may be necessary which also needs to be recognised by the learner in order to encourage a focus on form, a development of the interlanguage, a striving for accuracy (ibid).

Skehan expresses caution regarding computers being sufficient in giving opportunities for focus on form since they are just loci where the learner engages with L2. Without additional support, for example, via software programmes which focus on form (ibid), the pressure on the learner to engage with content may lead to neglect of accuracy. Alternatively, a framework could be created in which focus on form can be stimulated, for example, a "public performance", reporting back to the group or "publishing" the outcome to a wider audience, for example, creating a web page. The latter is advocated by Warschauer (2000b) in the concept of agency and is incorporated into the task-based learning cycle illustrated above (Figure 3).

Task-based learning combined with technology opens opportunities for collaborative learning (Zähner, Fauverge and Wong 2000) and simulations (Katz and Lesgold 1993). The concept of collaborative learning manifested itself in the task brief of the ERP (see below) which is divided into five sub-tasks, each designed to create a more complex learning outcome via collaboration between the different groups.

Collaboration fulfills two different functions in this task-based approach: First, collaboration stimulates meaningful communication between participants and therefore creates a variety of modified language output. The sociocultural approach to language learning facilitates negotiation of meaning, which in turn creates opportunity for L2 learning.

Second, collaboration is a constituent part of constructivism, a learner-led approach. Constructivism facilitates students to take decisions regarding the content and learning process, therefore empowering students to 'own' the process, which may have a positive impact on their motivation, both to participate and to strive to performance with high levels of accuracy.

To put these ideas into context, the actual task brief and its position in the module syllabus shall now be introduced.

## 2.8 Specific tasks for the ERP

The ERP activity represents a task based on team work. It allocates different sub-tasks to the participating five groups which work towards a collaboratively constructed marketing strategy for a product of their choice. Even though the task encourages following a generic pathway (Figure 4), decisions students make influence their specific learning paths.

The activity is primarily meaning-focused and encourages negotiation in respect of content and language. It is designed to be wholly conducted in L2, utilizing a variety of skills (Figure 5). The concentration on L2 represents the opportunity of a temporary 'immersion' in the L2 environment which provides a large amount of L2 input. The L2 input includes authentic material from the Internet which stretches the learners' interlanguage.

One week in advance of the ERP, students were given the task brief and asked to familiarize themselves with it. During the following week, before the actual role-play commenced, verbal comprehension checks were made.

---

### **Actual task brief of the electronic role-play<sup>19</sup>**

Students were asked to envisage the following situation:

#### Situation

Your company (British) wants to expand into a new market (East German states, "neue Bundesländer"). You are working in small groups towards the mutual goal of developing a marketing strategy for a product of your choice, taking the following points into consideration:

- possible economic problems
- cultural differences between the countries.

#### Conditions

All communication between your group and your colleagues has to be in German. You are working for renowned medium-sized companies. The register used in your written communication should be appropriate to your role. All communication with your colleagues of the other groups has to be via email (all emails cc to your tutor, please). Be (self)critical. The outcome of successful negotiations is important to you. Financial loss through an unsuccessful business deal may mean losing your job or even financial ruin for your company. On the other hand, a successful product launch on the new market will present you with the salary increase you have longed for.

You work in 5 groups, each following their own sub-tasks.

---

<sup>19</sup> The original task brief (in German) can be found in Appendix 2.

## Tasks

**Group 1** (student 1+2): Company A (headquarters in Nottingham) wants to expand into a new market. This group decides the product and informs the others of the choice. Describe your product and your target group. Contact group 2 and ask for assistance regarding the launch of your product.

**Group 2** (student 3+4): Company B (located in the target country) is a market research company. You are working on a general market research strategy. Ask other groups to provide you with relevant information. Develop an appropriate strategy for the product you want to launch. You need to explain/justify your choice later.

**Group 3** (student 5+6): You search the Internet for information on similar products. Inform the other groups of relevant information.

**Group 4** (student 7+8): Using the Internet, collect relevant material on the market conditions in the target market. Send relevant summarized information to your colleagues (other groups).

**Group 5** (student 9+10): Collate a checklist of possible cultural differences and economic problems which could hinder (or help) the introduction of the product to the new market. Advise your colleagues in the other groups or request specific information from them which may help your task.

## Schedule

**Week 1** During the first week, you formulate relevant questions you want to answer in your group during the project. You collate information through your own research and through communication with the other groups.

**Week 2** You evaluate the information gathered so far with a view to developing a marketing strategy for the chosen product. Begin developing a (self)critical presentation of your group's results.

**Week 3** All groups introduce their results and describe the development of the project from their group's perspective (presentation). Name your results and the marketing strategy so far. Include your knowledge of cultural differences and economic problems. Name possible, anticipated difficulties for the introduction of the product to the new market and suggest solutions to the problems.

**Week 4** Individual written summary of the project. Final group discussion of the project.

---

The ERP is embedded in the syllabus of the language class which has the following aims and objectives.

-To improve and consolidate cognitive and linguistic skills: oral and aural skills, synthesising information and acting as linguistic intermediaries, comprehension and critical analysis of documents in the target language, written production.

- To increase sensitivity to linguistic register and consolidate knowledge of relevant vocabulary.
- To provide bridges between the world of business and broader socio-political issues.
- To encourage a critical assessment of the role of business in contemporary European societies.
- To capitalise on the knowledge and understanding gained during the year abroad. (module handbook (GERM 30012) for students)

The first two objectives refer to general cognitive and linguistic skills and are addressed by the ERP task. The third objective was addressed by specifically requesting the introduction of the new product in a distinct market, that of the new federal states, i.e. those that formerly constituted the GDR. German re-unification presented considerable economic challenges which were partly manifested in much higher unemployment rates in the east and therefore less consumer spending power. Besides economic challenges, re-unification also brought social and political issues to the foreground which could be made more transparent through the ERP-task. Since the participants had recently returned from their year abroad in Germany, students had an awareness of some of the issues associated with re-unification (objective 5) and could increase their understanding by research in relation to the task. The fourth aim stated above was only touched on the periphery by the ERP, which, after all, represented only a 4-week section of the year-long module.

Generic pathway for the entire electronic role-play



**Figure 4 Generic Pathway For The Entire Electronic Role-Play**  
(This figure has been published in Leahy 2008:254.)

The task was designed for five groups with ten students overall, therefore two students formed a dyad or group. Dyad and group are used as interchangeable terms and refer to two students taking on one role in which they deal with their specific sub-task. Small groups and pair work are generally seen as advantageous in teaching and learning situations which utilise ICT (Laurillard 2002). Especially in L2 classrooms, pair work allows students the possibility to help each other in relation to technology as well as the L2 tasks while simultaneously creating speaking opportunities and therefore occasions for practice of L2.

Two students sat together, with two computers in front of them. The different dyads sat slightly apart<sup>20</sup> and were asked to pretend to be geographically removed from one another. For example, group 1, the leader company, was supposedly situated in Nottingham while group 2, the advisory marketing company, was based on Germany. The other groups represented teams of colleagues working for companies A and B. Groups 3 to 5 could be instructed by groups 1 and 2 to provide specific information or they researched according to their general briefs. Their direction of research was dependent on decisions taken in group 1 and possibly group 2. Their dependency on groups 1 and 2 was intended to encourage collaboration between groups, creating a real purpose for their communication.

Since the different student groups were supposedly geographically separated from one another and communication via telephone or video-conferencing was not incorporated into the task, hypothetically oral communication could only occur within the dyads, but not across groups. Any discussion between different groups was requested to take place via email. The findings of the case study show that it is very difficult to enforce such task restrictions consistently. Some students will try to shortcut the task and speak to fellow students in other groups directly. However, nearly all communication between students took place in accordance with the task framework.

This task instruction fulfilled two functions: From the student perspective, on one hand, the restrictions on the channels of communication mimicked professional life and facilitated that students "gained experience of working collaboratively in online teams [...] an important competence as organizations increasingly collaborate by using online technologies" (Hrastinski and Watson 2009:287). Groups had to email one another to gain and distribute information. This kind of communication is common in many professional situations, for example, among academics at university as well as employees in other larger organisations. On the other hand, students had to think about the medium and the best way to phrase a question or a response. Indeed, at the end of the project, some of the students

---

<sup>20</sup> Appendix 3 shows the seating arrangement in the computer room.

had not only recognised these two functions but also commented positively on the experience of having had to communicate by email.

The task did not incorporate more recent applications like wikis which are ideally suited for collaborative written tasks. However, the ERP was purposely based on email communication instead since email represents a professional communication channel and the task attempts to mimic professional life. Secondly, wikis were not widely known in the CALL community of the late 1990s (when the original ERP task was used in my class), even though they existed since 1993 (Raitman, Augar and Zhou 2005) and there have been annual symposiums dedicated to wikis and open collaboration since 2005 (the last year during which this specific ERP was performed).

For research purposes I wanted to keep the same task for several projects. The object of this thesis' case study is the task, not people or technology. Technology should not lead the task, but pedagogical considerations which in this case are better represented in email communication. Wikis are good platforms for planning purposes, but the task communication of the case study is less based on planning. Instead discussion and negotiation take a central position, therefore wikis would not be the best platform, neither would be discussion forums which involve all students. The ERP includes communication between different groups which followed specific sub-tasks and who can be directly addressed by email. Addressing them via a discussion forum for all participants could lead to confusion or tangents in communication strands. To set up forums for each group would have been artificial and not mimicking professional life. More recent application like blogs are also not suited to the task since they are more useful for monologues rather than exchanges of ideas.

As a by-product, the chosen communication channel of email communication between groups aided a more complete collection of data: By definition, email communication was documented in written form and provided a record. For the core case study, oral communication between partners of each dyad could be recorded on the Camtasia software and thereafter transcribed. It would have been impossible to capture comprehensively oral communication between members of different groups on the Camtasia recording, had students engaged in oral communication across the room; students would have to turn away from their computers (and therefore microphone) in order to talk to the other groups and the software would not have been able to record the student talk clearly in all cases. Requesting that all cross-group communication took place via email tried to firstly capture the communication as comprehensively as possible, secondly reinforce the set scenario in which the students were supposedly geographically removed from one another, and thirdly made sure that communication was not lost due to technical data collection problems.

The framework of task-based learning with three distinct phases has been adapted to the requirements of the electronic role-play (Willis 2004, Figure 3). Initially, the electronic role-play followed a very similar structure, students went through the pre-task phase and they then worked through the same stages of a task cycle. In terms of time management, the first two weeks served exclusively the first phase in the task cycle, i.e. the collection and processing of information, negotiation of meaning and communication of ideas within the dyads as well as between different groups. The second and third phase of the task cycle, planning an oral report to the entire group and the presentation of the same took place in the third week. The task-based learning framework was then extended by an individually written, critical report, thereby producing again modified language output, but this time from a personal perspective with emphasis of the written register. Furthermore, the fourth week was used to have a free group discussion about the learning experience which served as debriefing and included a spontaneous evaluation from the student perspective.

By creating opportunities of modified L2 output, the basis for L2 learning has been generated since modified L2 output is a basic requirement for SLA.

However, the post-task phase of Willis' model of the task cycle did not arise. Because of the role-play's necessary complexity in a learning situation that mimics authentic circumstances, a separation between discrete focus on content and language was not possible or desirable. Focus on form occurred spontaneously and depended on the individual's level of interlanguage. For example, one student might focus on a grammatical form and another on a lexical item. Depending on each group's task, students were dealing with different content and language, it was therefore unlikely they would come across the same language questions focusing on the same specific forms of language. This design framework corresponds with other research (Hampel 2006) and research which reports that students are likely to follow their own agenda regarding focus on form, even if a specific agenda had been set by the teacher (Swain 1995). Not following a generic focus on form but rather an individual one can therefore reflect the preference students may have.

On an individual level, focus on form would occur when students notice a gap between what they wanted to and were able to express, a moment in the learning process which is seen by output theory to represent a window into the language learning process. Additionally, focus on form was occasionally assisted by the teacher since I was present during the entire project and could therefore assist in language queries, facilitating answers if required.

During this latter part of the project, the third stage of the task cycle, students reported their findings and evaluated critically their learning experience

during which they made constant use of the computer as a tool, hereby producing a modified language output. As discussed above, Skehan (2003) raised the question whether the computer can suffice to facilitate language learning by just being the locus for source material (input) and actual place for interaction. Reporting back can be considered an important necessity for the learning process, which would need to be recognised by the learner. As Skehan puts it,

[...] it is essential that actual computer-interaction is seen by learners as a stage to something else, rather than an end in itself. But there are additional benefits to such a post-computer interaction stage. Reporting back, and post-task recycling is likely to consolidate the language which has been encountered and semi-learned. Not simply vocabulary, but also particular syntactic forms, [...] can be re-used and learned more securely during the post task phase. (Skehan 2003:407)

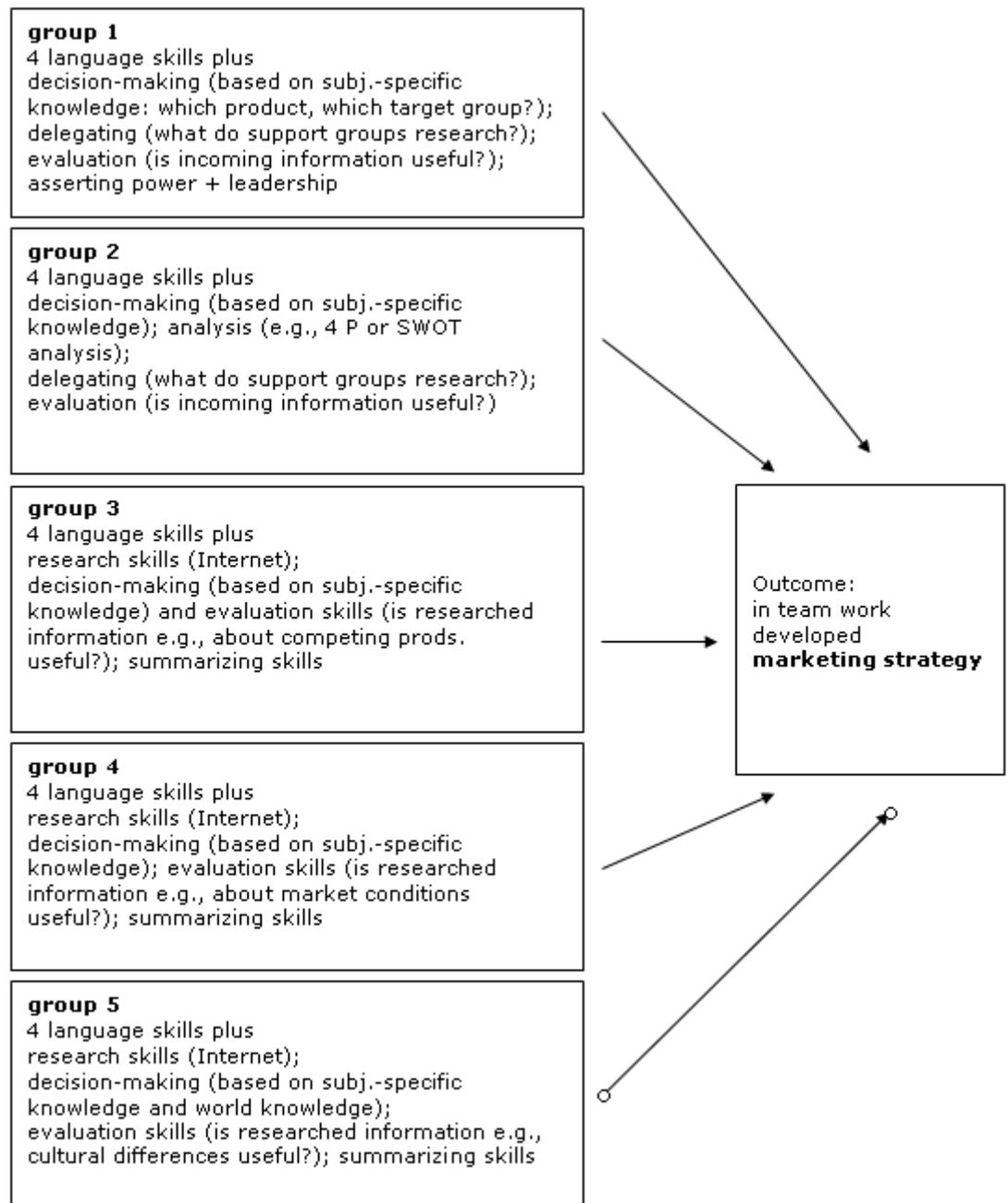
In second language acquisition research, focus on form (Doughty and Williams, 1998) and modified language output (Chapelle 1997, 2001) are generally seen as requirements of language learning processes and (in the form described above) correspond well with Warschauer's model (2000b) of Integrative CALL where the principle objective of language learning has moved from previous stages of Structural and Communicative CALL from accuracy, via fluency to agency. Agency is seen as "the power to construct a representation of reality" (Kramsch, A'Ness, & Lam 2000), in this case a representation of a marketing strategy for the product of the students' choice.

Students who were engaged in the ERP had the opportunity to express their agency through the development of a marketing strategy, which represented collaboratively constructed knowledge. Students worked on different small and specific tasks, which were all contributing to a bigger outcome than their individual group's sub-tasks.

A central feature of the ERP was the maximisation of student autonomy regarding the specific content of their task, i.e., the product they wanted to sell, as well as the line of investigation they took when fulfilling their individual sub-tasks, for example, highlighting similarities or differences to competitors' products and researching potential target groups. As previously discussed, giving students the autonomy to make decisions on their own, can contribute to their motivation to engage in the task actively, i.e., to seek answers to their questions by researching the web and to formulate answers in the target language. The electronic role-play was therefore not based on factual learning or discrete practice of grammatical phenomena, but on the application of subject-specific knowledge and the foreign language, both within a subject-specific meaningful context. Kern, Ware and Warschauer (2004:254) advocate this use of the Internet as helping "students enter into a new realm of collaborative inquiry and construction of knowledge, viewing their expanding repertoire of identities and communication strategies as

resources in the process.” This content-based language learning (Kaufman 2004) put great demands on the learners since the focus was divided between content and form. Therefore the task design built in a shift from initial primary L2 input to increasing L2 output. While the first 2 weeks served more the students’ research purposes, the following 2 weeks culminate in their oral presentations and individually written reports.

Figure 5 shows a generalisation of the skills employed in the electronic role-play, language skills as well as higher order skills, for example, analysis and evaluation. During the electronic role-play, individual students had the opportunity to practise the four language skills. Viewed from the individual student’s perspective, some skills were practised more than they would be normally in class.



**Figure 5 Skills Employed During The Task**

Skills developed within one role-play, divided by 5 different groups' subtasks. The skills predominantly required for each group's work are named above.

As advocated by constructivist approaches to L2 learning, the primary learning goal was to improve communicative competence of all four language skills (Wolff 2002). However, emphasis on individual language skills changed during the course of the task sequence: For example, in week 1, when the product was discussed and the task was negotiated within the dyads speaking and listening skills were primarily used.

In class, students normally need to share the speaking time among all participants, including the teacher. In the electronic role-play, they shared the same amount of time between 2 persons, or 3 if the teacher got involved too.

During the first week, reading and writing skills were also used since students read the task sheets and began their Internet research. They wrote their research questions for the project and emailed them to their fellow students. Incoming emails were read and discussed between the partners.

In week 1 and 2, emphasis was placed on active language skills of reading and speaking since the main part of the research needed to be completed before the presentations could be prepared in week 3. Students practised reading skills for gist as well as detail while they researched product related information.

In week 3, students finalised their oral presentations, emphasis was therefore placed on speaking in higher register. For discussion within dyads, students could use any register.

In week 4, particular emphasis was placed on writing skills, students wrote their individual critical reports about the project. Since this was a formal task, students were required to employ a higher register.

Figure 5 highlights which skills were practiced within the individual groups. The four main language skills were practised regularly in all groups, but some higher order skills, for example, summarizing authentic text for fellow students were practised by some groups more than by others, depending also on the groups' adherence to their task.

Language skill development as part of the communicative competence can be a declared learning outcome in constructivist approaches (Wolff 2002:4).

## **2.9 Summary of chapter 2**

This chapter has embedded the ERP as manifestation of CALL in SLA theory and a task-based learning approach. In particular, three issues were discussed:

1. the need to provide the learner with comprehensible input which (at the same time) is stretching the learners' interlanguage, but does not lead to cognitive overload.
2. how to deal with focus on form (in advanced L2 learner groups) in order to aid L2 learning.
3. the collaborative nature of the ERP task which serves a pedagogical need (constructivism) and is a requirement of L2 learning (sociocultural perspective).

This chapter concludes the contextualisation of the case study under consideration. Having introduced relevant SLA theory approaches which influenced

the task design assist the description of the appropriate methodology which facilitates an answer to the three research questions.

The next chapter will discuss the methodology applied to this study and will examine output theory more fully.

## 3 Methodology

---

This chapter begins with a positioning of the research within a qualitative research paradigm, and indicates the journey I undertook to decide on an appropriate methodology and specific research methods.

I will introduce the methods for data gathering and data analysis and will discuss these in the context of case study research and the context of the specific research questions. In order to aid the reading of the chapter, three section summaries and a chapter summary are provided.

Thereafter in chapter 4, specific issues relating to multimodal data, units of analysis and the methods referring to data management will be discussed. Relevant characteristics of the participants will be introduced.

---

### 3.1 The methodological problem

This thesis is based on the case study of one particular CALL application, that of an electronic role-play. The topic of the ERP consisted of the development of an outline of a marketing strategy, but the object, the product to be introduced, was not determined by the teacher, but chosen by the participants at the beginning of the ERP, therefore specific relevant vocabulary and focus on specific linguistic forms could not (and were not intended to) be introduced by the teacher. The student-centred approach was a central constituent part of the task design which entailed that the outcome of the ERP, the development of the outline of a marketing strategy, was entirely guided and led by the participating students. This task design gave students practice of L2 in subject-specific context, with simultaneous access to the Internet and therefore relevant current information which could be chosen by the participants. Within the boundaries of the task framework, the brief was unspecific and therefore open to cater for student interests. Their choices determined which content was subject of the L2 practice.

In this context, the term content carries specific meaning: Firstly, it refers to the topic area of the chosen product, for example, mobile phones or a pub chain. Secondly, it refers to related information students needed in order to fulfill their task. This information was accessed via the Internet, summarised, synthesised and incorporated into their newly created content, for example, the language output as part of the development of the marketing strategy. Part of this related content

could be rooted in the sociocultural, political and economic factors of the target country, for example, distinct German consumer habits, (un)employment rates, recycling habits, food consciousness. Thirdly, the term content refers to the students' subject-specific knowledge which they had acquired as part of their main degree course. They were encouraged to apply this knowledge to the ERP, to mimic professional life in a business context and therefore to act as 'consultants' within an L2 framework.

As the previous two chapters outlined in depth, the ERP was developed as a CALL task on the basis of the specific pedagogical approach of constructivism and task-based learning which incorporated SLA theory. Introducing free access to the Internet to the learning situation transferred the CALL task to a multimedia task.

Mayer (2005:ix) defines the term multimedia as follows: "multimedia learning is defined as learning from words (e.g., spoken and printed text) and pictures (e.g., illustrations photos, maps, graphs, animation or video)." In the context of this thesis the multimedia aspect was situated in CALL, the computer was the locus which delivered multimedia information. It also transmitted communication (CMC), and allowed creation of new (multimedia) content, for example, powerpoint presentations with visual, content-carrying elements. Furthermore, it gave access to tools, for example, electronic dictionaries.

The complexity of multimedia adds complexity to the research endeavour: The challenge to research SLA in such a complex setting may be the reason why it is difficult to find research already completed which takes the whole learning situation into consideration, which led Plass and Jones (2005:479) to conclude that "little or no empirical research has been conducted to examine the learning in more authentic settings, such as multimedia-mediated communication or video-conferencing, that engage students in direct communication."

Reviewing research on multimedia applications and second language acquisition, Plass and Jones (2005:477-8) state the following:

With regard to the design of empirical studies, researchers in second-language acquisition with multimedia are faced with the challenging task of conducting their investigations in authentic settings in which the language is acquired in natural communication, while at the same time employing rigorous research designs that can provide results that are meaningful and relevant. *The study of language acquisition during natural communication does not readily allow for the use of rigorous quantitative designs*, and studies that did try to employ quantitative methods in unaltered natural settings tended to be forced to employ suboptimal designs that led to a limited validity of the findings. [...] In order to avoid these problems, researchers must either conduct studies of a more experimental nature in less authentic settings, or employ research methodologies that are more appropriate to the study of language acquisition in situ. [emphasis in italics added]

I was faced with the same problems which are rooted in the authentic situation with uncontrollable variables, but decided against sacrificing the more natural and therefore more authentic setting which caused the search for more appropriate methodologies suitable for "the study of language acquisition in situ", as Plass and Jones state above. I experienced difficulties in finding the appropriate methodology in order to find answers to the research questions (RQs) I posed, namely (1) how I could demonstrate whether content was learned in the open task CALL activity, (2) how I could demonstrate whether the role-play facilitates language learning and (3) how I could discover and gain understanding of what students actually do, when involved in this kind of CALL task, what kind of interactional patterns might emerge?

The literature review did not show up a similar research endeavour which worked with a multitude of variables and similar lines of inquiry within this kind of complex context. To name an example for the problem of establishing causal relationships between the ERP treatment and potential research findings: How can a causal link be established between exposure to the ERP and specific content as it might appear as student output in the marketing strategy? How can it be excluded that the student knew this content before or acquired it outside class during the time of the project? In relation to research question 2 which investigates whether the electronic role-play can facilitate language learning within CALL, a similar problem occurred. How can a causal link be established between exposure to natural communication (e.g., in news reports) or authentic text in form of government reports and L2 produced by learners?

Part of the problem is based on the nature of the complexity of the phenomenon under investigation, i.e., a computer-assisted electronic role-play which gives access to the Internet and therefore to visual and aural texts in addition to written texts.

To find such an appropriate research methodology represented a longer journey for me which shall be elaborated below.

### **3.2 Development of methodology**

During the years the electronic role-play was used in class, the interest in the answers to the research questions remained constant, so did the framework of the CALL project, which represents the case under investigation.

However, the most appropriate methodology to lead to answers to these questions took time to emerge and was found by a process of elimination which shall be explained in this chapter. The methodology which appeared to be best suited could only be applied to the last electronic role-play which is subject to the case study under investigation and referred to as the core case study.

The following section reflects the process of the development of the research approach during the six years the electronic role-play was used in class. It elaborates the decision on the methodology as an approach from research questions to research paradigm, to methods and methodology (see Figure 6). The research questions are positioned at the top, indicating that they are influencing the entirety of the development towards a methodology, they take the first position in the reading of the hierarchical representation. The research questions are situated in the pre-knowledge of the researcher, in the researcher's understanding of the nature of reality and what can be known about it.

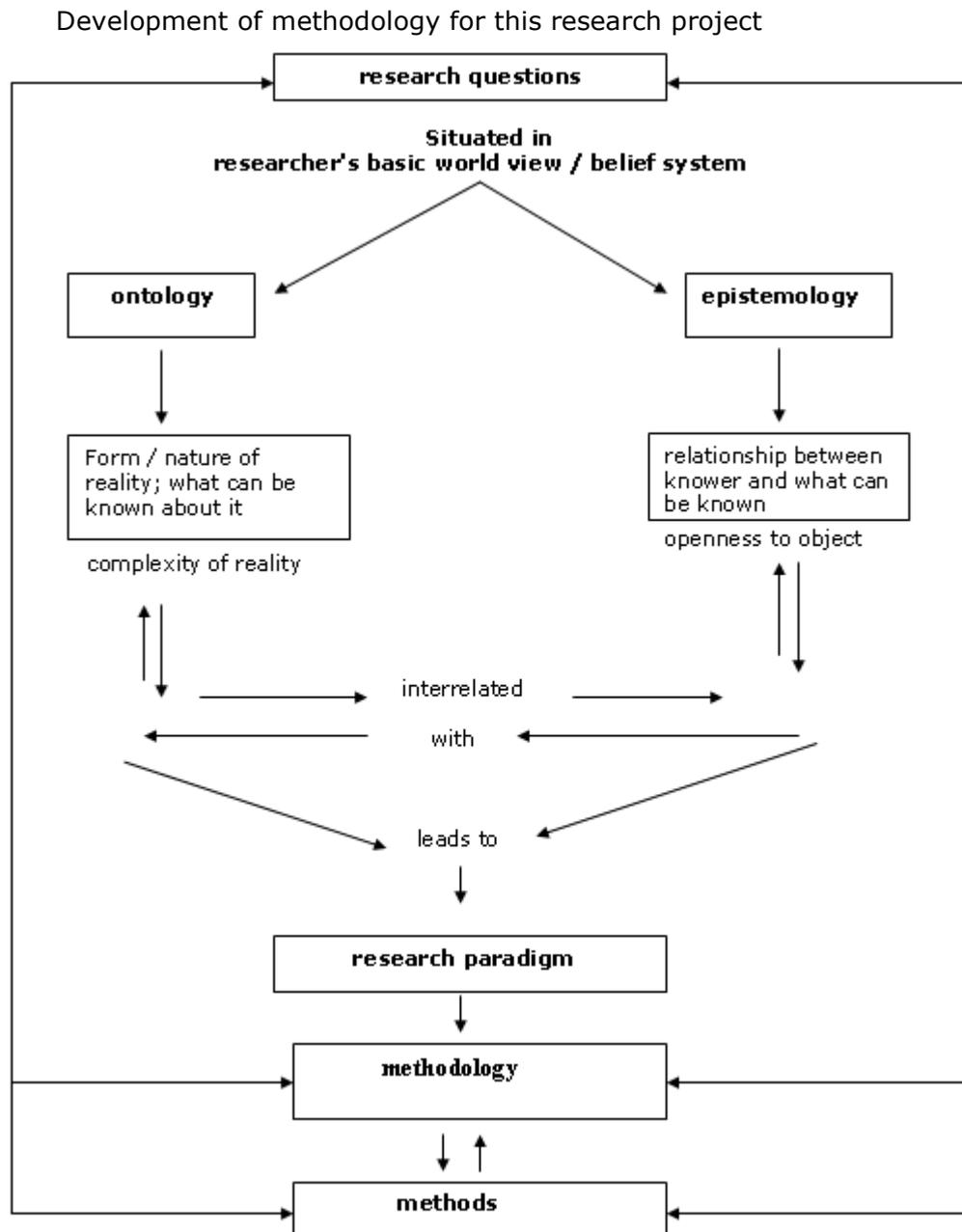
Methodology, on the other hand, represents an overarching and much bigger concept than the research questions, and was developed by moving through the process (as reflected in Figure 6) from RQs to situating the research approach in the appropriate paradigm. Once I had matched the research paradigm with the ontology and epistemology, the search for an appropriate methodology became much more focused. Different methodologies were looked at with a view of answering my research questions, for example, ethnography, phenomenology, action research, two of which shall be discussed in more detail below. However, it became clear to me that a case study approach would be most suitable and facilitated to pursue the RQs, applying different methods to them. Case study research may apply propositions, the match between propositions for this case study and individual research questions is discussed at the end of this chapter. This chapter takes the reader through the steps of the search for the appropriate methodology as represented in the figure, beginning with the research questions and ending with the methods applied to the data analysis.

### **3.3 The nature of enquiry**

#### **3.3.1 Positioning of the research questions in a research paradigm**

During early discussions with the supervisors and colleagues at conferences, it seemed sensible to approach the research informed by a quantitative research paradigm (see Table 3), both in relation to data collection as well as data analysis. One of the computer's undisputed qualities lies in its data collection capability, and its speed in processing data. Quantitative data can be relatively easily collected and statistically represented. However, I did not feel comfortable with using a quantitative methodology, formulating specific hypotheses which could then be verified or falsified, since hypotheses, once articulated, would limit the inquiry in its focus on the scope of these hypotheses. This becomes particularly obvious in relation to the third RQ which was deliberately wide in scope: What do students do when they are involved in such a CALL task? What kind of interactional patterns

emerge between students, and student and computer? The question aims to illuminate the students' behaviour while they are involved with the CALL task.



**Figure 6 Development Of Methodology**

Interpretation of Guba and Lincoln 2004 (pp. 21-2), as applied to this research project.

This question investigates what students do, how they communicate, how they use the computer for their purposes. It is a question of general 'curiosity' regarding the student behaviour while engaged with a computer-assisted learning task. It is more time-bound than the other two questions since questions 1 and 2 involve learning in general, but question 3 is influenced by the literacy in technology-use the students bring to the learning situation. I was fully aware that the level of

computer literacy could vary within the class (Leahy 2000) and between cohorts of different years (since the electronic role-play was used 6 times in the span of 7 years), as well as same year groups with different subject areas. A previous study had shown a pronounced difference in computer literacy between business and law students of the same year and same university level in the same institution (Leahy 1999).

My interest as expressed in the third research question was led by interest in seeking a general understanding of the students' use of the computer in assistance of their learning at that moment in time in which the task was performed. What do the students do when involved in the ERP task? This general interest represents an open approach to the enquiry and is not restrictive and allows many other questions to emerge, such as: Which computer functions do they use in order to solve their task? Do they stay focused on the task at hand? Do they exploit the Internet access for non-task related actions? How do they create new text? Do they copy and paste from original sources? etc. If a specific hypothesis was formulated, it would close the enquiry following other questions. Instead, I wanted to keep an open mind and explore what students do in such environments, unrestricted in the approach by a positivistic view which would manifest itself in a formulated hypothesis. My interest was based on a holistic view of the learning experience, staying close to the data, allowing the data to speak for itself, as Glaser and Strauss (2006) would put it (Table 3).

The number of variables and the freedom of student choice in the task application does not facilitate the formulation of verifiable hypotheses, not for the third research question as elaborated above, nor regarding the second RQ which concerns L2 acquisition. The task requires students to use L2 authentic language of an advanced level in a situation based on professional communication. Pre-tests would not be able to establish fully the level of the students' interlanguage or level of mastery of linguistic forms and structure against which post-tests could be used as a measurement, thereby assuming that the difference in L2 measurement reflects the added value gained through the ERP treatment. This kind of research design (situated in a quantitative research paradigm) may be useful for beginner learners where it can be reasonably clear which level of proficiency had been already acquired before treatment. Tasks for beginner learners are based on a limited level of proficiency regarding vocabulary, grammar and structures, which allow for performance predictions and therefore posing of hypotheses. For example, a comparative approach could be taken for a sequence which practises the use of cases in German with certain prepositions. One group of students could receive a CALL treatment designed for the target group, a control group could receive treatment in a traditional classroom.

Research Paradigms		
quantitative paradigm	qualitative paradigm	qualitative paradigm as applied to this case study
Advocates the use of quantitative methods, e.g., statistics	Advocates the use of qualitative methods, e.g., fieldwork, interviews	uses qualitative methods, e.g., grounded theory (GT), and software support: Camtasia
Logical-positivism: 'seeks the <i>facts</i> or <i>causes</i> of social phenomena with little regard for the subjective states of individuals'.	Phenomeonologism and verstehen: 'concerned with <i>understanding</i> human behaviour from the actor's own frame of reference'.	Phenomeonologism and verstehen: 'concerned with <i>understanding</i> human behaviour from the actor's own frame of reference', e.g., the use of output theory to explore windows into SLA processes
Obtrusive and controlled measurement.	Naturalistic and uncontrolled observation.	Naturalistic and uncontrolled observation, based on recording via tracking software, analysis with GT
Objective.	Subjective.	Subjective (RQs 2+3) and attempted to be more objective (RQ1).
Removed from the data; the 'outsider' perspective	Close to the data; the 'insider' perspective.	Close to the data; the 'insider' perspective, through transcripts and Camtasia recording
Ungrounded, verification-oriented, confirmatory, reductionist, inferential, and hyperthetico-deductive.	Grounded, discovery-oriented, exploratory, expansionist, descriptive, and inductive.	Grounded, discovery-oriented, exploratory and descriptive.
Outcome-oriented.	Process-oriented.	Process-oriented: 3 methods: RQ1 – mapping of content strands; RQ2 – output theory; RQ3 – GT; and outcome-oriented: RQ1 – 'comparative' method
Reliable; 'hard' and replicable data.	Valid; 'real', 'rich', and 'deep' data.	Valid; 'real', 'rich', and 'deep' data.
Generalizable, multiple case studies	Ungeneralizable; single case studies.	Single case study.
Particularistic.	Holistic	Holistic.
Assumes a stable reality.	Assumes a dynamic reality.	Assumes a dynamic reality.

**Table 3 Research Paradigms**

Columns 1+2 represent attributes of the qualitative and quantitative paradigms (following Reichardt and Cook 1979:10 as quoted in Larsen-Freeman and Long 1991:12); column 3 represents the approach chosen for this research project.

A hypothesis based on the difference in treatment could make predictions which group would perform better in post-tests in comparison to pre-treatment tests. At the core of such positivistic approaches lies a belief that there can be measurable objective truth which is waiting to be discovered. Once variables which can have an impact on the research outcome are removed or limited, the outcome of the research would reflect which treatment is more effective, which approach leads to more effective learning.

I considered similar approaches based on a quantitative research paradigm. But advanced learners' interlanguage is less predictable, especially since students are encouraged to continue their study independently and autonomously outside the classroom, thereby being exposed to varying L2 input. Since learning of specific vocabulary, grammar or structures can occur in any area, unknown to the researcher, predictions for L2 progression are problematic; the formulation of hypothesis would therefore be difficult due to the amount of uncontrollable variables.

Furthermore, it would not be possible to establish causality based on pre- and post-testing. To establish a causal relationship between participation in the ERP and improving the interlanguage would not be possible. For example, advanced learners would have been exposed to the teaching of specific forms, for example, adjective endings in German and their changes due to cases. However, this is a difficult part of German grammar and exposure to the teaching of the rules and practice of the forms may lead to acquisition in some students, but not in others. It is known that learners may need many hours of practice after a grammar point has been introduced before the concept is acquired (Blake 2008). In the case of the ERP, causality in reference to the treatment would not be established via pre- and post-testing. Specific rules or vocabulary were not introduced in advance of the start of the ERP, hypothesis therefore could not be formed.

A pre- and post test research design is based on a model which understands language being learned mainly via knowledge transfer: The learner receives comprehensible input, including structures and rules, internalises the input and after some practice is able to use it, measurable in output. This approach is not applicable in the case of the ERP.

Through the process of elimination (as discussed above), I concluded that this specific CALL task can not be approached with a quantitative paradigm. Instead of a restricted view of SLA I believed that negotiation of meaning, communication and collaboration with others contributed to the learning process (Gass 1997, 1999; Pica et al 1989; Pica 1991). Therefore the problem arose how L2 learning (rather than what had been learned) could be made visible, if it occurred. How could the second research question be answered which seeks to discover whether the role-

play can facilitate language learning? If L2 learning took place, how could it be demonstrated?

The problem of appropriate research approach is slightly different for the first research question which seeks to discover whether content can be learned in this open framework and how any such learning can be demonstrated. This question seemed to need to involve measurement of knowledge, pre- and post-treatment. Again, simple tests before and after the task sequence are not possible because of the student choice built into the task, an essential part of the task design, embedded in its rationale. Furthermore, variables are not controllable to the degree where causality between the task sequence and the student learning can be assumed.

The above exemplifies that both my ontological and epistemological position is directed towards a qualitative research paradigm "in which social meaning is created during interaction, [and] the techniques of observation typical within positivism do not reveal the meanings that social actors attach to their everyday experiences" (Hesse-Biber and Leavy 2004:5).

Guba and Lincoln (2004:17) define research paradigm as "the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways" to which questions of method are secondary (ibid). My view of the nature of the reality I was dealing with was based on the complexity of reality in which full control over the research situation could not be ascertained and was not desirable, since control would have been gained through a trade-off against the natural approach to the task. I also wanted to maintain an openness to the object of study, unrestricted by the constraints and limited view of pre-formulated hypothesis.

Guba and Lincoln (2004) continue that a "paradigm may be viewed as a set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of the 'world', the individual's place in it, and the range of possible relationships to that world and its parts [...]" (Guba and Lincoln 2004: 21).

In my case, these basic beliefs are situated in a holistic approach to the learning situation in which I wanted to explore the natural use of language and the computer for the purpose of solving a specific CALL task. I also took a holistic view towards the task itself which was purposely designed to mimic a professional situation and therefore retained many variables, just as a real life problem solving situation would.

Part of the initial difficulty in finding the appropriate methodology was situated in the conflict I created by positioning myself in both of the two major paradigms of quantitative and qualitative research approaches (Table 3) with their associated methods and methodologies (see Figure 6). While the task design and

my ontological and epistemological position would point towards qualitative research, at the beginning I was also toying with ideas for hypotheses and ways of testing them, for example, in form of a comparative study with a group of students in the traditional classroom, or pre- and post treatment performance, thereby focusing on learning outcome. The exploration of these avenues did not lead to a satisfactory outcome since the compromise on the task design would have been too great, in order to create a setting with fewer variables in which such a comparative approach could be taken. But the ERP task design with its open framework was embedded in pedagogical beliefs which I did not want to compromise in favour of a research approach. Thus, keeping the open framework towards the CALL task did not limit the variables sufficiently in order to match a quantitative research approach. On the other hand, a qualitative approach, for example, an ethnographic one would involve interviews, participant observation and field notes with a view to "understand the social reality from the participants' perspective" (Hesse-Biber and Leavy, 2006:234). Such ethnographic approach was not appropriate for two reasons: Firstly, student interviews would not have helped in answering the first two research questions. Secondly, participant observation and field notes would have only given a partial insight into student interaction. As a single teacher/researcher and participating observer, I was not able to pay close attention to all students simultaneously and take enough field notes. Without additional help in the research endeavour, for example, in form of assistants or filming the participants individually, an ethnographic approach was not practical.

During the year 2001, I tried to interest the NTU students of broadcast journalism to collaborate and film the participants of my study. However, without any reward in form of accreditation or other incentives, the broadcast journalism students could not be convinced to attend the class on four consecutive Mondays at 9.00 on a different campus from their base. This would have involved additional travelling since there is a distance of some miles between the two campuses, which inhibited students to brave the morning rush hour.

Another frequently applied methodology for classroom studies is action research which is carried out by the teacher within their class and emphasises a reflexive approach. Action research aims at change of practice (Cohen, Manion and Morrison 2008; McNiff and Whitehead 2009; Somekh 2007; Tammelin 2004). More specifically, action research has been defined in terms of different aims for the different elements of the research approach. According to McNiff's and Whitehead's definition (2009: 17), action has the aim "to improve a personal or social situation" while the term research follows the aim of generating theory. The written version of the outcome is referred to as the story which aims to "communicate the significance of the action research for public legitimation". The authors do,

however, acknowledge that this separation is artificial and that action research represents "taking action and doing research [...] together" (ibid). Similarly, action research is often seen as "a powerful tool for change and improvement at the local level" (Cohen, Manion and Morrison 2008:297).

A central feature of action research is the role of the researcher, who is involved in the action, and does not only observe it (McNiff and Whitehead 2009). Another central feature of action research is the "*self-reflective spiral*: a spiral of cycles of *planning*, *acting* (implementing plans), *observing* (systematically), *reflecting*, ... and then re-planning, further implementation, observing and reflecting, ... " (Cohen, Manion and Morrison 2008:300 [italics in original]; cf. Tammelin 2004). Even though the researcher in this study is identical with the teacher, having therefore consistent access to the participants during the actual ERP, an action research approach was not suitable under the conditions the present study was conducted. The reason for this is rooted in two conditions: the research aim and research questions. The aim of the research under consideration here is to gain a better understanding how the ERP can facilitate learning; it has no critical purpose at its centre and it does not attempt to implement change. Instead, the research aim is to explore the effect and effectiveness of the ERP as a manifestation of one CALL application, in relation to the three basic, but fundamental research questions. Furthermore, the core of action research is based on a reflective cycle, with its function to impact on the planning of the next cycle. Initiating change through reflection is not relevant in order to answer the specific research questions posed here, i.e., whether content can be learned in this open framework; whether the role-play facilitates language learning; and what students actually do, when involved in this kind of CALL task?

Action research as the methodological approach cannot deliver the answers to the research questions. In addition, there is a practical element too, which means that action research is not the appropriate approach for this research: As already mentioned, acting as a facilitator in the learning situation as well as the practitioner-researcher, meant that systematic observation of all the students was impossible without filming them and observing the student behaviour asynchronously. The ERP requires that different student groups follow different paths in order to fulfill their respective roles. An evaluation of the task's usefulness in a language learning class can not take place if the researcher does not have insights into the students' actions in order to address their tasks.

My intention was not to change the actual task, but to test the research questions applied to the same CALL task, the same case. It was therefore necessary to keep the case and its conditions constant, it would have defeated the object had I used an action research approach which specifically aims for improvement and change. The ERP was used in class six times over the period of

seven years. Taking a longitudinal perspective, I thought to learn more about the change in the way students use technology (RQ3) since the participants would bring increasingly more sophisticated computer literacy skills to the endeavour. Furthermore, I had intended to gain deeper insights into the usefulness of this type of CALL if I used the same task over several years with the same type of learner group, i.e., business students.

It became clear that a quantitative approach was not suitable for this study since too many uncontrollable variables existed. A qualitative approach in form of either ethnography or action research were also unsuitable since they could not deliver answers to my specific research questions. Looking at the different attributes of the quantitative and qualitative research paradigms as named by Reichardt and Cook (1979, see Table 3), my study is evidently situated within the qualitative paradigm, but outside the two approaches of ethnography and action research. I therefore had to look at other approaches. My study seeks knowledge how students can learn language and content in a given CALL setting, which does not control conditions and variables, but remains as naturalistic as possible (Cohen, Manion and Morrison 2008:19). The term naturalistic refers here to at least two task conditions. Firstly, the teaching and learning situation is student-led, as in other classroom learning frameworks the students were familiar with. The computer-room environment did not make the teaching and learning situation less naturalistic. Secondly, the task mimics professional life and students were encouraged to work with it as if their performance had an impact on the financial outcome for them personally, a device built into the task to mirror a more 'realistic' authentic situation. The task brief stated:

The outcome of successful negotiations is important to you. Financial loss through an unsuccessful business deal may mean losing your job or even financial ruin for your company. On the other hand, a successful product launch on the new market will present you with the salary increase you have longed for.

It is recognised, of course, that any classroom-learning situation can only be 'realistic' or 'authentic' to a degree since the students will generally be aware that they are in a classroom and not really business people working on a marketing strategy. However, the task design requires authentic L2 input and enables authentic use of L2 as part of a meaningful collaboration. It thereby encourages naturalistic language use while mimicking naturalistic tasks which could be encountered in professional life.

This study explores how students create their language output in such an environment and how they make use of the computer in the process. It does so in an attempt to understand the interactional patterns and the behaviour of the

participants in such a setting with a view to evaluate the computer-assisted learning opportunities it affords.

An attempt to reduce variables is not made at the expense of the task design, the inquiry is discovery- and process oriented, not based on verification and outcome (see Table 3). In other words, it takes a holistic view of the learning situation and attempts to capture a better insight into the usefulness of the CALL application through the answers to the three research questions.

### **3.4 Summary of section**

In summary, the research paradigm chosen for this study is reflected in Table 3. The process of moving towards the qualitative paradigm is represented in the upper half of Figure 6. It developed through a process of elimination of methods and methodologies which did not provide answers to my research questions. I entered into the research process with an epistemological stance of openness to the object of study. My understanding of the nature of reality in which the research object is situated is characterised by complexity which I cannot truly unravel (since a single reality or truth cannot be discovered) and in which relationships in form of cause and effect cannot be objectively established. The reality I explored is dynamic and not stable, the approach to it is holistic, not particularistic. A constituent part of the ERP is student choice. This creates uncontrollable variables which undermine the use of quantitative methods, for example, the formulation of hypotheses and their verification. On the other hand, qualitative methods like interviews, and qualitative methodologies like action research and ethnography were also eliminated since they cannot provide answers to the research questions posed.

Having established the research paradigm, I still needed to find the appropriate methods and methodology (lower part of Figure 6). Methodology is generally seen as a coming together of epistemology, theory and method. Epistemology is defined as "a theory of knowledge embedded in a theoretical perspective" (Creswell 2003:4, as quoted in Hesse-Biber and Leavy 2006:35). Hesse-Biber and Leavy (2006:36-7) elaborate the concept of methodology as follows:

It is in methodology that theory and method come together in order to create a guide to, and through, research design, from question formulation through analysis and representation. [...] Methodology is a bridge that brings theory and method, perspective and tool, together. It is important to remember that this is a bridge the researcher travels throughout the entire research process. In other words, *methodology fuses theory and method, serving as a strategic but malleable guide throughout the research experience.* [emphasis in italics added]

The answer to the question of appropriate methodology for a research project can only be achieved through the research questions themselves. As Grotjahn put it,

"the choice of research methodology ought to be driven by the question one wishes to have answered, not by adherence to one research paradigm rather than another" (Grotjahn 1987 as cited by Nunan 1996:360).

One of my earlier difficulties had been the mismatch of what I wanted to find out with methods which could not achieve this, since they belonged to a research paradigm which cannot deliver answers to the questions posed. Larsen-Freeman and Long (1991:14) echo Grotjahn's view and state:

[...] what is important for researchers is not the choice of *a priori* paradigms or even methodologies, but rather to be clear on what the purpose of the study is and to match that purpose with the attributes most likely to accomplish it. Put another way, *the methodological design should be determined by the research question*. [emphasis in italic added]

The purpose of my study is clearly stated in the three research questions. (1) Can content be learned in this open framework of CALL? If so, how can it be demonstrated? (2) Can the electronic role-play facilitate language learning within CALL? If so, how can this be demonstrated? (3) What do students actually do, when involved in this kind of CALL task? What kind of student behaviour or interactional patterns emerge?

The three questions taken individually belong to different research fields: second language acquisition research and learning theory as well as social science in the widest sense. All three questions combined belong to the relatively new research discipline of CALL which is still in the process of discussing fitting methodologies. Hubbard commented:

If CALL were a mature field, we could usefully define CALL methodology as the set of methods employed by CALL practitioners, where method represents an organised set of consistent principles and their realisation in a piece of courseware or in a computer-based activity. [...] However, CALL is not a mature field. (Hubbard 1996:15-6)

The same argument could be made for CALL research which has not established one overarching methodology. This notion is reflected in the conference theme of the international CALL conference in Antwerp in 2004 which chose the central theme of 'CALL and research methodologies' and initiated discussions on methodological approaches through their key note speakers, focusing on methods of other disciplines, for example, applied linguistics, language learning and social sciences. CALL is an interdisciplinary field, following diverse questions of enquiry (Hubbard 2003), and benefits from application of methods and methodologies anchored in different disciplines. This thesis is an example for a methodological approach which utilises methods from different fields. I approached the three questions individually, applying different relevant theories of the research fields named above, united under the umbrella of the case study methodology (Denscombe 2007; Gerring 2007; Hammerly, Gomm and Foster 2002; Stake 1995,

2005; Yin 2009). The methods applied to the different research questions will be elaborated below. The chosen methodological approach contributes to the body of CALL methodology. At first, the general framework for the inquiry shall be introduced, that of a case study.

### **3.5 Case study as a methodology**

As outlined above, when considering possible methodologies with the view to answering my specific research questions, several qualitative research approaches were considered. Eventually I chose the case study as overarching approach, which is considered "particularly appropriate for exploring students' learning processes in learning with technology (Liu, 2007; Tsui & Treagust, 2003)" (Liu 2010:186). My research questions aim to seek a better understanding of how the ERP can aid computer-assisted language learning, I wanted to explore and explain the learning potential inherent in ERPs as specific manifestations of CALL. The purpose is neither to test hypotheses nor to follow specific intentions, for example, that of change (as in action research). Rather the purpose of this case study is to make it possible for the events to speak for themselves and not "to be largely interpreted, evaluated or judged by the researcher" (Cohen, Manion and Morrison 2008:254).

Within the context of enquiries in educational settings, Bassey (1999:58) distinguishes three kinds of case study, (1) theory-seeking and theory-testing case studies, (2) story-telling and picture-drawing case studies and (3) evaluative case studies. In the context of this thesis, the second type of case study is of interest. Bassey defines it as "narrative stories and descriptive accounts of educational events, projects, programmes, institutions or systems which deserve to be told to interested audiences, after careful analysis" (ibid). He sees the three types of case study as enquiries which among other things, at their core "explore *significant* features of the case" and "create *plausible* interpretations of what is found" (ibid, italic in original). Bassey is aware that the terms 'significant' and 'plausible' are subjective and thereby points to a critical issue inherent in case studies: Case studies can be seen as a problematic methodological approach since the term does not cover one specific definition, but different interpretations, for example, they can be based on small or large number of participants, can investigate one or several units, aim at generalisations or explore a single phenomenon, deal with topics where context and case are difficult to distinguish (Gerring 2007; Yin 2009).

In general, criticism of the case study method relates to three main areas of concern: (a) the problem of generalizability of results and (b) the difficulty of cross-checking and (c) the issue of observer bias (Cohen, Manion and Morrison 2008:256). This makes clear that case studies are vulnerable to criticism, particularly from a positivistic perspective. Lincoln and Guba (in Gomm,

Hammersley and Foster 2002: chapter 2) discuss and question the usefulness of striving for generalizability of results in a positivistic sense in research contexts outside the natural sciences. As their title's subheading states: "The trouble with generalizations is that they don't apply to particulars" (ibid: 27). And it may be just those particulars the researcher wants to be looking for and therefore would need the methods, tools and instruments to find them.

Gerring (2007:6) emphasises the critical view that "the case study research design is viewed by most methodologist with extreme circumspection." Gerring points out that the case study method could be used by practitioners as "an all purpose excuse, a license to do whatever a researcher wishes to do with a chosen topic" (ibid). He supports this view by quoting Zeev Maoz:

There is a nearly complete lack of documentation of the approach to data collection, data management, and data analysis and interference in case study research. In contrast to other research strategies in political research where authors devote considerable time and effort to document the technical aspects of their research, one often gets the impression that the use of case study (sic) absolves the author from any kind of methodological consideration. Case studies have become in many cases a synonym for free-form research where everything goes and the author does not feel compelled to spell out how he or she intends to do the research, why a specific case or set of cases has been selected, which data are used and which are omitted, how data are processed and analysed, and how interferences were derived from the study presented. Yet, at the end of the story, we often find sweeping generalizations and 'lessons' derived from this case. (Zeev Maoz (2002) as quoted in Gerring 2007:6)

This quote represents a very critical view of case studies. Some of the negative points mentioned above could be caused by the fact that there does not appear to be an established and codified case study research design (Yin 2009:26). Case study is frequently used for inquiries in diverse fields, for example, sociology, psychology, education (Yin 2009:4) and clinical experiments which may differ in their understanding of what constitutes case study research design. There also seems to be a lack of agreement whether generalization of findings is a desirable outcome of this kind of research. From a positivistic perspective, generalizations and transferability of findings represent a result to strive for, if these are based on reliable and replicable (or even replicated) data. Instead, case studies may emphasise detailed description over verification-oriented approaches, or may seek to discover particulars of the case (Lincoln and Guba 2002: 27). In this case study under consideration, learning more about particulars is one aim of the inquiry regarding the third research question, which seeks to understand how students use the computer in CALL.

Furthermore, in a case study conducted for explorative reasons, generalisation is not the aim, but rather the discovery of some principles which can

form, for example, the basis for hypothesis which may be core for further future research.

The case being studied represents open task CALL, exemplified in an electronic role-play. It will avoid the shortcomings listed by Maoz (above) by giving, for example, clear account of data collection and management. The context of the case has been described in some depth in the previous two chapters, which firmly locate the ERP in pedagogy, SLA theory and CALL research. The approach to methods for data collection (this chapter, below), data management (chapter 4) and data analysis (chapter 5) will be named explicitly, but first the methodology of the case study shall be looked at more closely.

Yin states that the "distinct need for case studies arises out of the desire to understand complex social phenomena" (Yin 2009:4) and that the "case study is preferred in examining contemporary events, but when the relevant behaviors cannot be manipulated" (ibid:11), or, one might add, the case study is particularly useful where the relevant behaviours are studied in their naturalistic environment where their manipulation is not intended. This latter situation can be given in educational research, where students' behaviour or actions are subject to the inquiry. My third research question is anchored in this latter approach; it seeks to investigate whether common interactional patterns of behaviour can be found in relation to students interacting with each other or the computer, while engaged in the CALL task. Case studies, as defined by Yin (2009:18) show the following characteristics:

A case study is an empirical inquiry that

- investigates a contemporary phenomenon in depth and within its real-life context, especially when
- the boundaries between phenomenon and context are not clearly evident. [...]

The case study inquiry

- copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
- relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
- benefits from the prior development of theoretical propositions to guide data collection and analysis.

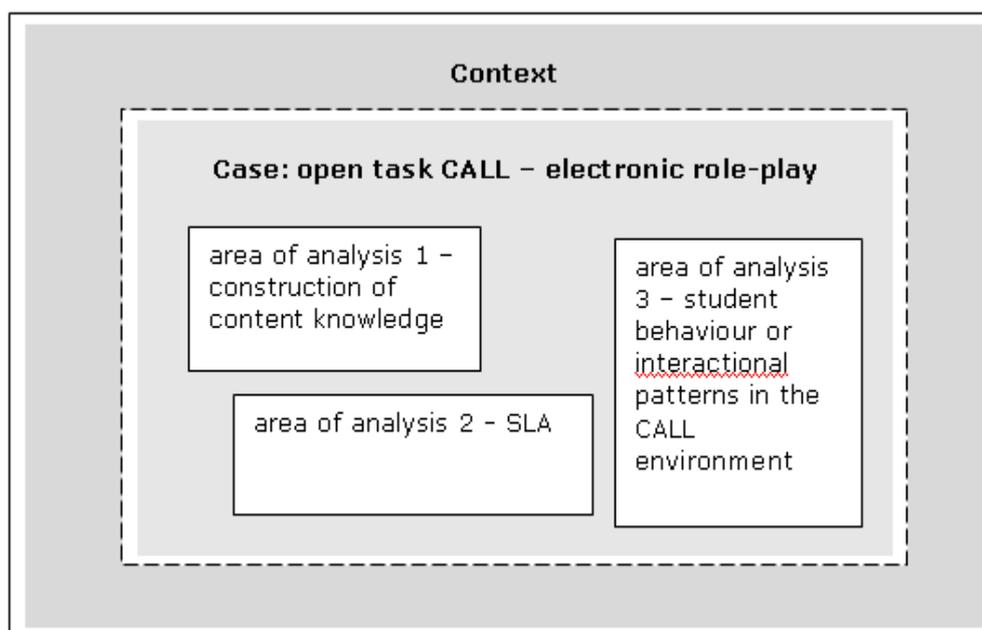
The case researched here does investigate a contemporary phenomenon, that of a computer-assisted language learning task. The holistic unit of analysis is the manifestation of CALL in form of the ERP. The context of the case ERP was developed in the previous two chapters, i.e., pedagogical and SLA concerns which influenced the task design were presented. This context influenced the actual case, but is not the case. In that sense the boundaries between context and phenomenon studied may be blurred. On the other hand, the context of the classroom situation is clear, even though a blurring effect may occur in relation to

spatial boundaries: the access to the Internet allows the outside of a normally controlled learning situation to enter the classroom; the outside reaches the inside of the classroom in form of information from an unlimited and unrestricted number of websites.

Similarly, the access to email allows a reaching out to the wider world beyond the participating fellow students and the teacher who are engaged in the ERP. On the other hand, temporal boundaries are clearly defined: They are determined by the institutional convention to teach non-specialist language classes for 2 hours per week; in this case for a duration of four weeks.

The case study does rely on multiple sources of evidence which shall be elaborated below. Theoretical propositions are used for RQs 1+2, while the third RQ is more discovery-oriented: Here propositions would be inappropriate.

The study represents a single case design, but with different embedded elements or areas of analysis (Figure 7). The analysis may be exemplified through the performance of different dyads, thereby taking a triangulation approach, which uses more than just one method of data collection and data analysis.



**Figure 7 Single Case Study Design**

Single case study indicating areas of analysis: one of the basic types of design for case studies, adapted from Yin 2009:46.

The areas of analysis are defined by the scope of the research questions, the actual size of the units of analysis may vary. The units of analysis will be defined and discussed in more detail in the following chapter.

Unlike case studies about institutions, for example, a business case study, the case study under consideration did not require a document research to aid better understanding of the context of the case. I as teacher /researcher wrote the task

and knew about the considerations which led to the task design. It is important to describe and justify these considerations (chapters 1 and 2) which informed the context and to analyse their effect on the ERP. Chapter 4 gives account of the data management.

### **3.6 Summary of section**

In summary, the present case study is embedded in a designed context: The task framework was planned using a specific pedagogical approach and second language acquisition theory as outlined. It is also embedded in a real-life context, in which spatial boundaries are not clearly defined. Even though a spatial boundary is given by the physical boundary of the classroom, i.e., the computer room at Nottingham Trent University, the communicative space and space for access to content is not bound by the same spatial confinement since the use of the Internet allows reaching outside the classroom. While traditional teaching with its printed learning material remains in the spatial boundaries of the classroom, the computer room with Internet connection opens up access to content only bound by what is (a) available on the web and (b) what students choose to access. Internet access also facilitates the use of email. Email communication among the participants within the classroom was built into the task, but the potential was there too, to reach out to others anywhere in the world. Indeed, this latter option was made use of when students, for example, contacted a German importer for British crisps and a prestigious German department store (KaDeWe in Berlin)<sup>21</sup>. Through facilitation by the Internet, the class in the computer room therefore can extend beyond the spatial boundary of the actual classroom, it may transform the place of learning to "an authentic environment in which students can practice how they may eventually move around in the world outside the classroom" (Barson 1997:34).

In 2005, the case study under investigation, the electronic role-play, took place during a period of four weeks, with two hours contact time per week. This given temporal boundary constitutes a moment in time which reflects a specific familiarity with technology on the part of students. The availability of material on the Internet and access to software and applications, for example, email and the type of VLE are equally time-bound. For example, recent years have seen a growth in available electronic dictionaries as well as increasingly more task-relevant government and company information being accessible via the Internet.

Case studies need boundaries in order to indicate their "distinct identity", to reflect "what is contained within the case (and to be incorporated into the investigation) and what is outside the case (and therefore to be excluded from the

---

<sup>21</sup> These examples are taken from electronic role-plays during the years 1999-2000 and 2001-2.

focus of the study” (Denscombe 2007:44). Here, the case consists of the ERP as one representation of an open task-based CALL application, with the temporal boundaries of four weeks in the year in which the ERP took place and the main spatial boundary of the classroom. However, the incorporation of the Internet allows for the occasional extension of the spatial boundary beyond the classroom walls, as mentioned above.

The second part of Yin’s case study definition above highlights the fact that case studies are used for complex inquiries which cannot control all variables. As a result, case studies often use a triangulation approach, which can benefit from “prior development of theoretical propositions to guide data collection and analysis” (Yin 2009:18).

In this thesis, the case study employs triangulation to analyse and interpret the data, with each research question being answered by utilising a specific theoretical approach. Theoretical propositions were used for research questions one and two, both for data collection as well as analysis.

Before discussing the theoretical propositions, a brief overview of the evolution of data collection methods shall be given. Three phases can be distinguished: the pilot phase, the interim phase and finally the most comprehensive phase of the core case study which benefited from the use of the tracking software Camtasia (Table 4 and Appendix 1).

### **3.7 Evolution of methods for data collection**

The methods of data collection are one of the crucial parts of any research design and need to be compatible with the research questions. As stated above, this case study concentrates on the last year in which the ERP was conducted because the methods for data collection were the most appropriate and comprehensive out of all the projects. For reasons outlined below, the methods used during the final year were not available during previous years. Because the methods for data collection developed through the six years, a direct comparison between the different projects cannot be made. However, insights from the previous projects may be used in context of the findings of the core case study (triangulation). A longitudinal *perspective* towards the case of the ERP can be taken, even though a longitudinal *study* of it is not possible in all aspects. This becomes clear when looking at the development of the methods available. But first, I shall clarify the term longitudinal perspective.

### 3.8 Longitudinal perspective

The term "longitudinal" needs clarification in relation to the theories applied to the research, namely SLA theory and CALL. In SLA research, the term longitudinal study usually refers to people and their development of interlanguage or development of language proficiency in general.

SLA research methods can be divided into, for example, cross-sectional and longitudinal approaches to data collection and analysis. A cross-sectional approach may highlight, for example, learner differences. The term "longitudinal" applied to SLA studies usually refers to the observation of one person or groups over time (Bardovi-Harlig 2000; Larsen-Freeman and Long 1991; Nunan 1996). Therefore, L2 development in one person or a group of persons is at the centre of the investigation in such cases. The underlying idea of this kind of longitudinal study is that insights into the learner language produced over a given period of time may provide insights into how L2 is acquired, whether patterns or sequences of acquisition emerge, which in turn could, for example, inform teaching.

Besides the possible emergence of acquisition sequences (e.g., Bardovi-Harlig 2000), longitudinal studies of SLA can also illuminate the effectiveness of particular methods of L2 learning, for example, the immersion in L2 environments. Again, this kind of study has people at the centre of the investigation. For example, Schmidt (1983<sup>22</sup>) found through a longitudinal study that a Japanese man living as a naturalistic learner in an English speaking environment mainly communicated in formulaic utterances, which seemed to be effective for his purposes (e.g., to order food) but did not acquire L2 language which would allow more complex and subtle communication.

Similarly, CALL studies informed by SLA research have looked at incidents of SLA and specific use of the target language within the medium of CALL, usually confined to the particular study and cohort (deRidder 1999; de la Fuente 2003; Fiori 2005; Laufer and Hill 2000; Leahy 2001a, 2004a, 2004b; Meskill and Anthony 2005; Stockwell and Harrington 2003). The focus therefore concentrated on people and their L2 use over a given period of time.

This thesis, however, is different in that the task is the common element over a period of time, not the human being. The task facilitates six different student groups to produce the outline of a marketing strategy in L2. Here, the term longitudinal refers to the same research questions applied to the same task during six years, but with six different groups of participants, six different cohorts of business students with German.

Such an approach corresponds with a perceived lack of longitudinal studies addressing questions of SLA concerns and student engagement with the task over

---

<sup>22</sup> As cited in Long 1996:424.

time as was expressed in specific requests for this kind of study in the literature (Kern, Ware and Warschauer 2004, 2008).

### **3.9 Summary of section**

In summary, in the context of this thesis, the term "longitudinal perspective" refers to the findings in relation to the application of one CALL task which were discovered over the period of several years. The task remained the constant, not the person/s involved in the task.

This approach cannot shed light on the possible influence of the learning environment on SLA over extended periods of time, but it can be particularly interesting in relation to the student engagement, the student interactions over time, i.e. their different approaches to technology, the different 'readiness' of the students to adopt and use the CALL task in a relatively homogenous group, i.e. different cohorts of similar L2 learners, i.e. business students following the same degree pathway at the same university.

These lines of enquiry remain tangent to the research questions addressed in the core case study but reference to previous ERPs may be made when discussing the findings of the core study, thereby taking a longitudinal perspective.

### **3.10 The teacher / researcher**

In a practitioner research project, the teacher / researcher combines several roles which will have an impact on the outcome. The teacher beliefs, conscious and subconscious, are reflected in the task design. The task design itself has an influence on the data created. For this case study, chapters 1 and 2 outlined the theoretical considerations which led to this particular open task design. The context should be sufficiently clear to inform the interpretation of the findings and to allow the reader to scrutinise the case study results, including in terms of validity.

For all projects, I was the only teacher / researcher. The two competing roles of facilitator in the classroom and participating observer meant that observation notes could not be taken consistently and systematically. Therefore I did not choose a methodology which would depend on observation notes. Observation notes taken in class referred mainly to matters related to the social organisation in class, for example, if students arrived late or left early, incidents therefore which would have an impact on the opportunity to communicate with the partner and which would not necessarily show up clearly on the recordings. Phases of silence between partners could have different causes, for example, concentration on different sub-tasks, when students researched different topic areas. At the stage of

data analysis, it could therefore be helpful to have access to observation notes which informed about a partner leaving before the end of class.

Tutor notes in form of memos which were written during the phases of transcribing dialogues and screen movements, as well as memos created during the coding phases had a different quality. These memos captured insights as well as questions borne out of the data and helped understanding and interpreting it.

As teacher / researcher, I was always close to the participants and the data. I was directly involved in creating data, as a facilitator I advised students in the efforts to complete the task, I answered their questions, and thereby became part of the recorded communication and negotiations. I was aware of the subjectivity I brought to the research situation by the fact of my participation as facilitator. However, I also kept distance and avoided becoming a driving force in any particular direction. Instead, I made clear my role as facilitator, not leader of the project. I explicitly explained to the students that group 1 had to take the leading role in the ERP. This was quite quickly accepted. Students who asked me questions which should have been directed towards group 1 were not given an answer by me but referred to group 1 instead.

### **3.11 Data collection methods**

The method of data collection can be divided into three phases (see Table 4); the pilot study in 1998-9, tweaked repeated re-runs during the years 1999 - 2003 and the more sophisticated approach during the final year of 2005. For each project, students were asked in advance for their consent to use the collected data for research purposes. All students gave their consent.<sup>23</sup>

#### **3.11.1 The pilot study**

Initially, the methods for data collection were confined to email communication between the different groups which were copied to the tutor (see Table 4). It was problematical to establish the chronological order in which emails had been written and sent, since the computer clocks were not synchronised. However, contextual clues in the messages allowed establishing a picture of the development of the project.

Further data consisted of some observational notes, taken by the tutor.

#### **3.11.2 The interim phase**

The type of data collected was extended to include the students' presentation material (1999/2000) and a recording of a discussion among all students (debriefing), giving feedback on the learning experience (2001-2). Additionally, an

---

<sup>23</sup>The consent form can be found in Appendix 4.

individually written report was introduced (2001-2). The tutor reminded students frequently to copy her into the email communication and the students were asked to set bookmarks for all the Internet sites they used for their research.

**Table 4 Progression Of The Electronic Role-Play Task**

	Year	length of project	Number of students	Chosen product	Data collected	Method of data collection
Pilot phase	(1) 1998/9	3 weeks	19	Computer game	Email communication between groups, few observation notes	emails copied to teacher; teacher participates + observes
Interim phase	(2) 99/00	3 weeks	13	Walkers crisps	Email communication between groups, presentation material, few observation notes	emails copied to teacher, students email presentations to her; teacher participates + observes
	(3) 2000/1	3 weeks	13	Mobile phone (pre-paid cards)	Email communication between groups, presentation material, few observation notes	ditto
	(4) 2001-2	1 <sup>st</sup> time 4 weeks	10	Christmas Pudding	Email communication between groups, presentation material, individually written summaries, transcript of student interaction, transcript of <b>1<sup>st</sup> final discussion (debriefing)</b> ; few observation notes	as above + written summaries are emailed to teacher, cassette recording of each group transcribed + first cassette recording of discussion (transcribed)
	(5) 2002-3	4 weeks	10	G3 mobile phone	Email communication between groups, presentation material, individually written summaries, transcript of student interaction, transcript of debriefing; few observation notes	ditto
	2003-4	Student group was too small to conduct the role-play (< 10 students)				
Core case study	(6) 2004-5	4 weeks	10 (7 BAIB + 3 IWLP <sup>24</sup> )	Pub chain, based on Wetherspoon	Email communication between groups, presentation material, individually written summaries, transcript of student interaction, transcript of debriefing; few observation notes + coding memos	emails copied to teacher; teacher participates + observes; <b>Camtasia software</b> for screen capture and recording of oral communication between students (transcribed) + cassette recording of final discussion/debriefing (transcribed)

<sup>24</sup> IWLP – Institution-wide language programme

These bookmarks were retrieved immediately after the class. However, the data collection based on these bookmarked Internet sites proved unreliable. Furthermore, it was not always possible to print the relevant pages immediately.

After time had elapsed, some of the web sites had changed content or were no longer available, or the links the students followed from the initially recorded page were not bookmarked as well and therefore lost.

A thorough comparison with the content of the web sites and the email communication or presentation material was for that reason not possible. Through observation during the actual lessons I knew that students had occasionally forgotten to bookmark website, or accessed some sites, and then used selective parts of the content, but possibly discarded it at a later stage. The method of data collection via emails and presentation material did not leave any trace of such aborted attempts.

The cassette recordings of student interaction within the dyads was of varying quality and included passages which were incomprehensible and subsequently very difficult to transcribe. The quality of such recordings is poor. The cassette deck had to be positioned between two students who worked as partners in a dyad. This meant that the recording was exposed to the computer humming as well as the student talk and other background noises, as for instance that of other students in the class and the sound of road traffic. Therefore the transcripts showed gaps where words had been incomprehensible. Furthermore, oral communication in front of a computer screen does not always consist of complete sentences. Incomplete sentences made it difficult to make sense of parts of the recordings.

Very careful analysis of transcripts and email communication showed that student communication in front of the computer led to triangular communication, or in the words of van Lier (2004) triadic interaction, with the computer as a constituent part (Leahy 2004b; van Lier 2004). This type of data collection was obviously less than ideal. I therefore was looking for a form of tracking software which would record the student oral communication as well as their use of the computer, including accessed Internet sites and all text produced and deleted.

I anticipated that such software would also show whether the use of the Internet led to primarily copy-and-paste actions, rather than the student's own text production, a suspicion some educators had at the time (and some have been confirmed by the increase in cases of plagiarism). If material had been copied directly from a website, the level of accuracy of the language produced by students in their emails or presentations would have been misleading and would not have been a reflection of the learning potential embedded in the task.

Initially, I looked at the STARR software for tracking purposes, which logs all student moves which can then be represented in text and printed. The STARR

software had its own problems, for example, regarding ethical considerations. It showed up the students' passwords for their university accounts, confidentiality of personal access would therefore have been breached and it would not have been appropriate to use the software. Furthermore, the amount of data STARR produces<sup>25</sup> would be difficult to deal with and the subsequent analysis very time consuming, therefore this approach had to be discarded for several reasons, including practical ones (Leahy 2004a).

In 2001, I contacted several authorities in the field of CALL, hoping that they could advise on more suitable software. It appears that such software was not available at the time<sup>26</sup>.

Once tracking software became available for this project, far more comprehensive data collection was possible. For this reason, the best documented ERP was the last one which shall be referred to as the core case study.

### 3.11.3 The core case study

The method of data collection for the core case study was much improved in relation to the previous two phases, since suitable software had eventually been sourced. Nearly 3 years after I had contacted various lists about software to support my research, I heard about the Camtasia software and its suitability for my project. In 2005, I received permission from TechSmith to use its trial version for 10 computers in order to record the project. The initial institutional problems which had slowed down progress could be overcome eventually too. At first, I could not get permission to upload tracking software on university computers in the computer rooms. I would have also needed support in activating it for class and deactivating it afterwards, since university computer rooms are open access rooms for all students and used frequently by students from different subject areas, not only those involved in the actual case study.

This support, for which administrative rights for the computers are required, was not available in any of the general computer access rooms. However, by 2005 the languages department had acquired their own computer room and the academic team leader gave permission to run the project. This gave access to the language department's technical support team<sup>27</sup> to set the computers up and act as technical help on standby.

The practical part regarding the methods of data collection had therefore been limited for some time, due to the lack of availability of technical and institutional support and not theoretical considerations regarding the research design.

---

<sup>25</sup> See Appendix 5 for an example of the type of printout the STARR software produces.

<sup>26</sup> See Appendix 6 for the email replies from specialists in the field of CALL.

<sup>27</sup> I would like to express my thanks to Trevor Pull and Paul Molineaux for their invaluable support.

Once institutional and technical support was secured and the appropriate software found, the problem of data collection methods had been overcome. Unfortunately, after having searched for the most suitable method of data collection for such a long time, the software could only be used once for this ERP since the business German course (and its associated programme BA European Business) was discontinued.

Camtasia records onscreen activities visually like a film, not in text form like the STARR tracking software. It shows all mouse movements, typing, deleting, websites used, switching between websites and other applications, etc. It provides therefore different types of multimodal data, including visual and text-based. It also records any noise and voices in the surroundings of the computer, and therefore provides information which requires good listening skills on the part of the researcher in order to transcribe the recordings later. These transcripts were then coded. The methods applied for data analysis shall be explained below in relation to the actual research questions.

### **3.12 Data analysis methods**

#### **3.12.1 Discussion of theoretical propositions and research methods**

For the first two research questions theoretical propositions were used which guided data analysis. Yin's case study definition (2009) highlighted the importance of propositions in general for both the collection and analysis of data, even though he does not consider them necessary in explorative case studies. Propositions can be helpful to give a sense of direction when responding to the research questions. The third RQ concerns itself with the exploration of interactional patterns and student behaviour when engaged with the ERP and is deliberately open in its approach. For this purpose propositions are not applied, instead grounded theory is used with the view to discover interactional patterns in the student behaviour.

The following section deals with the three research questions in turn, discussing the methods applied to data analysis.

#### **3.12.2 Data analysis methods addressing research question 1**

The first research question asks: Can content be learned in this open framework of CALL? If so, how can it be demonstrated? The question deals with the potential of learning content through this CALL task and explores ways to find evidence for this. Nottingham Trent University, similar to other higher education institutions, expects its educators to demonstrate that students achieve the stated learning outcomes.

Before the question of possible content learning can be addressed in detail, the meaning of the term content in the context of a language class needs to be made explicit. It was sketched at the beginning of this chapter and will be further

defined in chapter 5, preceding the findings relating to the first research question which is concerned with content acquisition. It shall suffice here to state that the term content refers to the application of skills and knowledge to the solving of the task. It does not refer so much to facts as such, but rather the appropriation of facts serving the fulfillment of the task. The task requested to develop a marketing strategy for a particular product and target group through collaborative efforts. The target group with its specific characteristics could be influenced by knowledge about current affairs, for example, the (un)employment rate within the target area.

A demonstration of the causal relationship between what actually happens in the classroom (or here the CALL task) and the student performance, for example, in tests (as a means to establish that learning took place) can be difficult, mainly because of heterogeneous learner groups and the problem of lack of control over variables (as discussed above). For example, within each year's cohort there could be different levels of knowledge concerning elements of the task: individual members of the whole group could have varying levels of familiarity with the chosen product. In relation to marketing strategies and market research methods students could equally possess different levels of knowledge at the outset of the project, and, as Magnan (2008:362) put it, "learners 'involved in the same task are necessarily involved in different activity, because they bring their unique histories, goals and capacities' to the task (Roebuck 2000:79 [...])". The role-play took place over a period of four weeks. As part of the general syllabus, students were encouraged to, for example, watch German news independently and keep up with current affairs. This introduced numerous variables and unknown factors to the study. These examples alone illustrate that the inquirer cannot hypothesise about content being learned and then test the hypotheses within such a given framework. A causality of content learned via the CALL treatment cannot be established from the outset and in advance of the project. The proposition in this context was that the students themselves would know best where their knowledge gaps were. If they were not graded for their performance, there would not be any incentive to be untruthful about their actual level of knowledge. In week one, students were therefore requested to formulate specific research questions themselves in line with their given roles which they intended to answer by the end of the project. Consequently, students moved through a sequence as illustrated in Table 5: They formulated questions they decided within each dyad, based on their given roles. They then researched the questions on the Internet, processed incoming information and modified it by producing output. The output during the last 2 weeks of the electronic role-play compared with the self-set questions of week one, should then be able to demonstrate whether content had been learned. In order to relate the content learned to the actual CALL activity, the accessed Internet sites,

the emails exchanged and the oral interaction between students in class had been recorded. These recordings could also assist the analysis when the crude comparison between questions asked in week 1 and the reporting of results in weeks 3 and 4 did not produce a clear correlation between the two, i.e. if the direction of questions changed or questions were abandoned. Furthermore, through close analysis of the topics discussed and developed in groups, content strands could be identified and mapped. For instance, a marketing strategy should be aimed at a defined target group. In previous ERPs the target group was either decided in week 1 by the leading group (group 1) or developed through negotiations with other groups during the process of tweaking the product for a specific market. In the latter case, the development of the content strand could be traced through email exchanges and discussions in dyads. Either way, the methods of comparison of self-posed questions with answers provided in student reports, as well as tracing content strands through student discussions, facilitated gaining insights into content learned.

### 3.12.3 Data analysis methods addressing research question 2

The second research question asks: Can the electronic role-play facilitate language learning within CALL? If so, how can this be demonstrated?

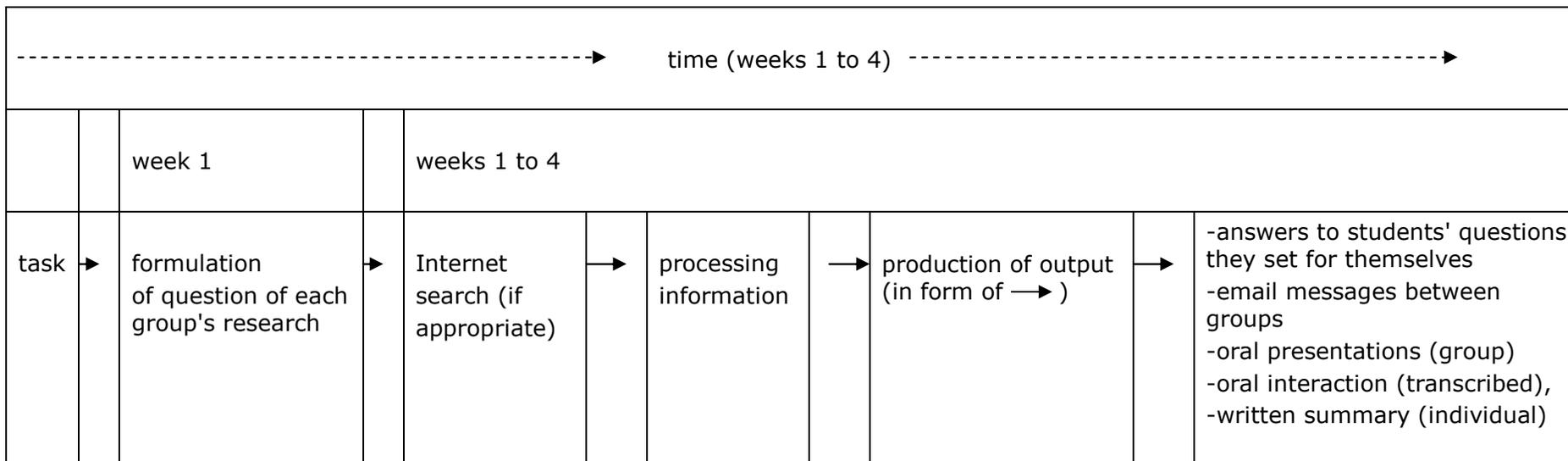
This question seeks to establish the CALL activity's potential for language learning. It was approached twofold: First, a framework for the possibility of L2 acquisition had to be created, for rich and authentic L2 input (Krashen 1985) and an occasion for interaction, for negotiation of meaning (Gass, Mackey and Pica 1998; Long 1996; Pica et al 1989; Swain 1995, 2000; Swain and Lapkin 2001) in order to give the opportunity for learning.

Secondly, a method was needed to show evidence of language learning. Data analysis searched for evidence of language learning while it occurred, or for occurrences which could point towards moments in which language learning is likely (Swain 1995). For the second research question the proposition was anchored in input and output theory. The proposition for this question consisted of two parts. Firstly, a pre-requisite for the potential of L2 learning is rich L2 input which has to stretch the student's interlanguage (in Krashen's term  $i+1$ ). Secondly, evidence of L2 leaning potential has to be analysed via L2 output. This output cannot be analysed and captured as L2 learning by employing a testing method on the basis of pre- and post tests. Hypothesis cannot be formulated and tested because of uncontrolled variables. Instead, the potential for L2 learning can be evidenced through indicators which reflect moments in which the student is attempting to express what goes beyond their present level of interlanguage. This shall be elaborated now. In the following, the term output theory refers to the earlier work of Swain, and Swain and Lapkin which was published before 2000. Swain later

refined her understanding of 'output theory' and referred to 'verbalization' and 'collaborative dialogue' (Swain 2000) instead of 'output' in an attempt to recognise that the student produced utterances go beyond a mere information-processing activity.

**Table 5 Method For Identifying Whether Content Was Learned**

The students work through the following sequence:



(sequence of activities for each group)

This method for identification of evidence for content learning is based on the assumption that students formulate their own research questions with a view of obtaining answers to content in areas where they genuinely do not know the answer already. Once they have moved through the sequence of the 4-week project and produce their presentations and individual critical summaries, they refer to content in reply to the self-set questions of week 1. Content acquired can therefore be made visible.

[The table was originally published in Leahy 2004a; above, it is slightly modified from the published version.]

Swain started to view the process of collaborative problem solving as an activity which a) reflects a cognitive activity, a process in which students try to make meaning, and simultaneously b) a product of cognitive activity, an objective product to which the speaker and others can respond. The outcome of the 'collaborative dialogue' may be the collaborative construction of linguistic knowledge (Swain 2000). This developed idea of output theory, which Swain subsequently (2006) referred to as languaging instead of verbalizing (Swain 2000) or simply output (Swain 1995), incorporates the idea of language as a mediating tool (Swain 2000) and the sociocultural aspect of second language learning (Lantolf 2000, 2006; Lantolf and Poehner 2008a). This developed view of output is important for the discussion and interpretation of results and shall be used when discussing them. However, for the purpose of method for analysis of language-related episodes (Swain 2001:104), it is relevant to a lesser degree. Language-related episodes (LRE) refer to

any part of a dialogue where students talk about language they are producing, question their language use, or other- or self-correct their language production (Swain and Lapkin 1995). LREs thus entail discussion of meaning and form, but may emphasise one of these more than the other.

Swain's original output theory referred to 3 primary events which may be indicators of learning taking place. These indicators remained part of the theory and shall be looked at as part of this chapter.

As outlined above, when designing the task for the ERP, the assumption was made that by providing rich comprehensible L2 input the opportunity for SLA was created. Furthermore, by applying output theory to the data analysis it could be established whether learning may have taken place. Output theory assumed that "output may stimulate learners to move from the semantic, open-ended, non-deterministic, strategic processing prevalent in comprehension to the complete grammatical processing needed for accurate production" (Swain 1995:128).

In other words, here L2 output was not only seen as a means to achieve fluency, but a means to language learning itself. Output theory hypothesised that there were certain windows into the process of language learning. If these incidences occurred there was an opportunity of interlanguage development, that SLA could take place.

These three instances, output theory referred to, can be summarized as follows (Swain 1993, 1995; Swain and Lapkin 1995): The first occurrence is represented in the learner's noticing of the gap between what they want to produce and are able to produce in L2. This may be visible through the learner's hesitation in forming an utterance or through interaction about form with a partner (in pair

work), or through expression of uncertainty about a form as recorded, for example, in think-aloud protocols.

The second function of output was seen in the learners' testing their own hypothesis about a L2 form whereby the output itself represents the tested hypothesis (Swain 1995:132). Research on negotiation of meaning, both between non-native speakers (NNS) and between NNS and native speakers (NS) has shown that learners may or may not take up suggested forms. This has been interpreted to be caused by the level of comprehensibility, i.e. comprehensible output (Pica, Halliday, Lewis and Morgenthaler 1989) or as a sign of testing hypothesis (Swain 1995:131). Swain (*ibid*) believed that "the modified, or reprocessed, output" could be seen to "represent the leading edge of a learner's interlanguage". Finding evidence of learner hypothesis testing could therefore represent evidence of language learning (Shehadeh 2003).

According to Swain, the third hypothesised window into SLA was represented by the metalinguistic role. Here, the learner reflects on language through language. Again, this could be revealed through think-aloud protocols which could show the learner reflecting about L2 hypothesis they had.

A pre-requisite for learner language analysis is the creation of learner opportunities to produce meaningful L2 output. In this context, Swain referred to the usefulness of collaborative learning tasks which can generate opportunities for extended discourse "which will push their linguistic competence to its limits as they [the learners] attempt to express their ideas" (Swain 1993:160).

Swain's research supports the notion that language can be acquired through interaction and refers specifically to Vygotsky's work. She acknowledged that the analysis of learner language should therefore be extended from input and output to the learner dialogue:

If one accepts a Vygotskian perspective that much learning is an activity that occurs in and through dialogues, that development occurs first on the inter-psychological plane through socially constructing knowledge and processes, then it must be that a close examination of dialogue as learners engage in problem-solving activity is directly revealing of mental processes. The unit of analysis of language learning and its associated processes may therefore more profitably be the dialogue, not input or output alone. (Swain 1995:142)

Accepting this view of learning, the method of approaching my second research question is anchored in the output hypothesis and includes analysis of dialogues between partners in dyads. The collaborative task incorporates Vygotsky's notion of the facilitative function of language as a cognitive device in problem-solving.

As elaborated above, the task design purposefully incorporated L2 input of an advanced level and opportunities for negotiation of meaning, thereby creating the prospect to observe the processes of L2 output in dialogue while working towards the tasks outcome.

The influence of Vygotsky is developed further in Swain's later thinking (2000, 2001, 2006) and shall be taken up when discussing the findings.

#### 3.12.4 Data analysis methods addressing research question 3

The third research question asks: What do students actually do, when involved in this kind of CALL task? What kind of student behaviour or interactional patterns emerge? This question aims to shed light on the interactional patterns between students and student and computer. Here, propositions were not formulated in advance. This part of the research was approached with general 'curiosity' and an 'open mind'. Research question 3 explores how students appropriate the computer environment for their purposes. The method of analysis and interpretation is anchored in grounded theory which provides useful strategies to synthesize data and to make "analytical sense of them" (Charmaz 2004: 496). The transcripts of the Camtasia recording of the student interaction together with the recorded screen movements were coded using grounded theory. The coded data, together with my memos written during the coding process, facilitate interpretation.

#### 3.12.5 Grounded theory (GT)

GT is useful in approaching the third research question because it can "help in structuring and organizing data [...] analysis" (Charmaz 2004:497). In particular, GT aids "creation of analytic codes and categories developed from the data, not from pre-conceived hypothesis, [...] the development of middle-range theories to explain behaviour and processes [... and] memo-making, i.e., writing analytic notes to explicate and fill out categories [...]" (ibid).

It can facilitate generating theory from the data directly. According to Glaser and Strauss (2006) GT sees theory as a process "[...] as an ever developing entity, not as a perfect product" (ibid: 32) in which data collection, data coding and data analysis are not separated but intertwined processes which happen more or less simultaneously: Data indicates concepts in form of categories and properties, both of which are seen as conceptual elements which feed into a developing theory (Glaser and Strauss 2006). Glaser defines a category as a

type of concept [...] used for a higher level of abstraction" (Glaser 1992: 38) while a property is a concept of lesser abstraction feeding into the category, hence a "property is a concept of a concept. (ibid)

Initial categories are generated through open coding. Glaser (1992:39) suggests two procedures for the generation process of categories: Firstly the generation of categories through constant comparison of incident to incident and then incident to concept. Secondly, using the same coding question for all incidents, namely "what category or property of a category does this incident indicate?" [ibid] Subsequently,

several other questions have been advocated in order to aid the coding process (see Table 6) which were also used in this thesis.

Questions aiding coding	
Glaser and Holton 2004: paragraph 48	Charmaz 2004:507
What is this data a study of?	What is going on?
What category does this incident indicate?	What are people doing?
What is actually happening in the data?	What is the person saying?
What is the main concern being faced by the participants?	What do the actions and statements take for granted?
What accounts for the continual resolving of this concern?	How do structure and context serve to support, maintain, impede or change these actions and statements?

**Table 6 Questions Aiding Coding**

Based on Glaser and Holton 2004 and Charmaz 2004; this table was slightly modified from that published in Leahy 2008.

After some time of coding, core categories should emerge which finally should help generating a theory.

### 3.12.6 Discussion of grounded theory

The understanding of what constitutes grounded theory has changed during the few decades the method has existed, a fact which has been acknowledged by, for example, Bryman (2004:401). While grounded theory was firstly outlined by Glaser and Strauss in 1967 in their joint publication 'The discovery of grounded theory: strategies for qualitative research', they subsequently interpreted GT differently from one another with different followers for their respective approaches. Charmaz' understanding of GT is influenced by Strauss, and it further develops GT into a constructivist approach, which in turn is criticized by Glaser (2002) in a very public manner. One of his articles begins with the opening line that "Constructivist Grounded Theory (GT) is a misnomer", this research approach would not represent GT. He continues a few pages further that "Constructivism is used to legitimate forcing" (Glaser 2002:4). In Glaser's understanding, forcing data represents a major misunderstanding of the GT approach, the latter would have to be based on coding data with "an open mind"; pre-conceived ideas would have to be pushed aside, and data would have to speak for itself, untouched by pre-conceived knowledge or ideas.

Glaser did not seem to tire of advocating his approach as correct and Strauss's approach (and other's who differ from him, for example, Charmaz, Creswell) as different from the original grounded theory and therefore in his logic

not GT (Glaser 1992, 2002; Glaser and Holton 2004; Glaser 2004). Without wanting to participate in this sometimes very bitter and emotive debate<sup>28</sup>, some of the generally accepted elements of grounded theory shall be used in this case study, namely the tool of coding data and thereby deriving categories and their properties as an outcome. These can then be interpreted within the context and theories which are applied to the study. Bryman (2004) further acknowledges that researchers have applied GT with varying degrees of adherence to the original approach as advocated by Glaser and Strauss in 1967 and states that “there is little doubt that there is considerable confusion about the nature of grounded theory” (Bryman 2004:408). However, core processes would be applicable to most GT projects. He writes:

[...] how far the approach is followed varies from study to study. What can be said is that many of its processes, such as coding, memos, and the very idea of allowing theoretical ideas to emerge out of one’s data, have been hugely influential. (Bryman 2004:408)

And these are precisely the elements which shall be applied to this project, without wanting to go as far as developing new theory. Charmaz (2004) acknowledges that most grounded theory work does not represent actual new theory when she writes that

most grounded theory researchers have aimed to develop rich conceptual analyses of lived experience and social worlds instead of intending to create substantive or formal theory. They wish to pursue more basic questions within the empirical world and try to understand the mysteries and puzzles it presents. Thus, these grounded theorists have given greater emphasis to developing analytic categories that synthesize and explicate processes in the worlds they study rather than to constructing tightly framed theories that generate hypotheses and make explicit predictions. Nonetheless, grounded theory methods provide powerful tools for taking conceptual analysis into theory development. (Charmaz 2004:517)

Other researchers have also opted for this inert approach (Bryman 2004)

### **3.13 Discussion of approach and application regarding this study**

Following on from above, the initial data of the core case study used for coding was collected during the summer term of 2005. Any insights generated from this data can be tested thereafter against subgroups of the same project and the data collected in previous years. GT explicitly refers to different types of data and data collection techniques to be integrated in the process of theoretical sampling (Glaser

---

<sup>28</sup> Glaser seems to see a necessity to use very emotive language in his attempts to prove everybody wrong who does not follow his take on GT. One example shall illustrate this: Glaser and Holton (2004) dismiss other forms of GT but their own as inferior by referring to Creswell as lumping “GT into comparisons with phenomenology, ethnography, case study and biographical life history. The result of the lumping is a cursory default remodeling of GT to a “kind” of QDA [qualitative data analysis]”. [emphasis in quotation by using inverted commas is part of original]

and Strauss 2006). The authors define theoretical sampling as "the process of data collection for generating theory whereby the analyst jointly collects, codes and analyses his [sic] data and decides what data to collect next and where to find them, in order to develop his [sic] theory as it emerges" (Glaser and Strauss 2006:45). The data of previous ERPs represents a kind of historical data since it is based on transcripts (of oral communication including the debriefings) and emails which are a reflection of a specific occurrence in time, previous to the core study data of 2005. While this thesis is primarily concerned with one ERP (2005), some of the data collected during previous projects may be visited and used to inform the core case study. The data borne out of previous case studies shall therefore serve triangulation purposes.

### **3.14 Summary of chapter 3**

This chapter has positioned the case study of this thesis within the qualitative research paradigm in which the case study approach was chosen as overarching methodology. I drew on different bodies of theory in the attempt to capture, analyse and interpret the case of the ERP. I used methods based on output theory and grounded theory for RQ2 and 3 respectively, which are situated in a qualitative paradigm and are subjective in approach. For RQ1, a comparative method was applied which comes close to a quantitative objective approach: Firstly, a variation to a pre- and post treatment 'test' was developed. Secondly, both the data collection and data analysis methods involved technical support in form of the Camtasia software which produces an accurate recording of computer actions taken by the participants. These recordings in turn could form the base for the qualitative approach of naturalistic and uncontrolled observation. All methods applied stayed close to the data and attempt to 'understand' the participants' actions, the insider perspective. The purpose of the research endeavour is exploratory and aims to discover the effectiveness of the task, in relation to the group studied. The three research questions are process-oriented, but the first RQ includes an outcome-oriented element: the answer to the question whether students have learned new content.

This chapter has described the journey in which an appropriate methodology and appropriate methods were developed which could deliver answers to the chosen research questions. It was shown that the theories applied to this case study represent a triangulation approach. For the first two research questions,

propositions were used and for the third question grounded theory methods were employed.

The next chapter will introduce the participants and the data itself, followed by the fifth chapter which will present the findings.

## 4 The core case study, data and data management

---

The previous chapter addressed the methodological approach taken to address the three research questions at the centre of this thesis. This chapter will address the methodological approach in more detail in reference to the core case study. In particular, issues relating to data collection and data management shall be elaborated.

---

The previous chapters have highlighted that in the context of CALL research, critical voices have asked for more descriptive work for some time. Levy (1997a:xii) referred to the "crucial role [descriptive work has] to play at this point in the evolution of CALL." Felix (2005) critiqued that the actual research design of CALL studies is often poorly described. In the context of case study design, Zeev Maoz (2002)<sup>29</sup> also critiqued the lack of description or documentation of procedure. In the previous chapter he was quoted as a critical voice towards the case study method, passing judgment on its perceived lack of rigour. Case study method in its own right needs to be distinguished from some research which may carry the title 'case study', but which may not represent sound case study method. The latter was the object of Maoz' criticism. The study under consideration here responds to the perceived lack of descriptive CALL research and explains the research design in some depth in order to facilitate discussion of the findings in the context of the actual case study design. Care was taken to document decisions taken. For example, chapter 3 outlined how the research was undertaken and how data was collected. It highlighted the evolution of data collection methods during the years the ERP was performed. Furthermore, that chapter illustrated why this specific cohort was chosen for the core case study. In this chapter at hand, the cohort shall be narrowed further to a smaller group of participants. Criteria for choosing that sample is outlined below. This chapter will give more information on the core case study and will address the question of data analysis and data management: Which data were used and which were omitted, how data were processed and

---

<sup>29</sup> In Gerring 2007:6.

analysed. In the following chapter, findings born out of data analysis will be addressed in some detail.

#### **4.1 The case study**

The previous chapter has briefly dealt with the rationale for using the case study method for this research project. This chapter will clarify the term further and specify which particular case study approach was applied. The case in this case study consists of the ERP as a manifestation of CALL. Like other role-plays in foreign language classes, it was part of the in-class activities to give students the opportunity to practise L2; in this instance within the context of subject-specific content. The ERP consisted of a 4 weeks' teaching and learning sequence. It reflected a real-life language teaching cycle or in Yin's understanding of case studies, a "real-life phenomenon, not an abstraction, such as a topic, an argument or even a hypothesis" (Yin 2009:32). This "real-life phenomenon", was studied primarily in two groups (= 4 students), similarly to Nunan's suggestion (1996: 362) that case studies investigate "the way in which a single instance or phenomenon (usually a single individual or limited numbers of individuals) functions in context". The four students (two dyads) chosen provide the sample of data for closer analysis.

This approach concurs with Cohen, Manion and Morrison's descriptors for case studies in the context of educational research, when they refer to Hitchcock and Hughes (1995:322)<sup>30</sup>. The latter give more comprehensive and general pointers and state that a case study is

- concerned with a rich and vivid description of events relevant to the case.
- It provides a chronological narrative of events relevant to the case.
- It blends a description of events with the analysis of them.
- It focuses on individual actors or groups of actors, and seeks to understand their perceptions of events.
- It highlights specific events which are relevant to the case.
- The researcher is integrally involved in the case.
- An attempt is made to portray the richness of the case in writing up the report. (Cohen, Manion and Morrison 2008:253)

These points were addressed in part in previous chapters, in particular by setting the context in which the case study is situated, the theoretical underpinning of the task design, and by indicating the chronological nature of the case ERP and the methodologies applied. This chapter outlines the rationale for focusing on particular student groups. The following chapter is dedicated to the data itself and deals with the description and analysis of events and data. First, the type of case study used shall be narrowed further.

---

<sup>30</sup> As cited in Cohen, Manion and Morrison 2008:253.

#### 4.1.1 Exploratory case study

The case study under consideration follows primarily an exploratory quest. The first two research questions aim to explore whether the ERP can facilitate the learning of content and language and how evidence for this can be discovered. For these two RQs, propositions were used. The third research question is less specific, it does not involve propositions, but takes an open approach which seeks to discover how students appropriate the CALL environment for their purposes. The exploratory case study may well be descriptive and may be used as a pilot study with the purpose of generating hypotheses which can be tested in follow-up research (Cohen, Manion and Morrison 2008). Exploratory (Yin 2009) or intrinsic (Stake 2005) case studies aim to gain a deeper understanding of a particular case, solely for the purpose to learn more about it, and not to explain a phenomenon. An intrinsic case study is a study

undertaken because, first and last, one wants better understanding of this particular case. It is not undertaken primarily because the case represents other cases or because it illustrates a particular trait or problem, but instead because in all its particularity and ordinariness, the case itself is of interest. [...T]he stories of those "living the case" will be teased out. The purpose is not to come to understand some abstract construct or generic phenomenon, [...]. The purpose is not theory-building [...]. Study is undertaken because of an intrinsic interest in, for example, this particular [...] curriculum. (Stake 2005:445)

For RQ3 grounded theory was the method applied. Using GT to describe the student behaviour in the CALL environment on a weekly basis allowed interactional patterns to emerge which could then form the basis of an understanding how students use the CALL setting for their purposes. The research questions and the units of analysis need to match the broader topic area of knowledge the case study relates to. In this instance this is CALL: Computer-assisted (RQ3, interactional patterns) language learning (RQ2, relating to SLA) and learning in general (RQ1, relating to content).

It is generally recognised that every case is set in context, for example, in sociology, case studies of organisations take into consideration that the institutions are usually situated in specific (organisational) cultures, as well as specific societies. The particular context of this study shall be outlined now.

#### 4.1.2 The context

The ERP was set in a designed context, unlike organisations which are situated in contexts which were not designed by the researcher conducting the case study. In the study under consideration, the context was given by the pedagogical framework and theoretical considerations which influenced the task design. Furthermore, the conditions in which the case study took place were affected by the fact that it took place in the university context of a British post 1992 university. The context has a

clear impact on the phenomenon of the “real-life ‘case’ ” (Yin 2009:32), but it does not represent the study as such (ibid).

Even though the context of the study was largely designed, there were still unknown elements which could consist of, for example, the ‘baggage’ students may bring to the class, for example, hidden motives (e.g., student 1), time management issues (the coinciding deadline to hand in the dissertation which affected negatively students 9 and 10), social dynamics between students (students 3 and 9), ill health (student 7) and job interviews (students 4, 5 and 8).

Other issues, which could have had an effect on the context and therefore ultimately the case could be rooted in the artificiality of the classroom situation: The students were aware they were only taking on the given roles, but their livelihood did not really depend on it, as the brief tried to make them believe. Furthermore, they were aware of being recorded and that they contributed to a research project<sup>31</sup>. This awareness may have had an impact on their performance. However, the research framework did not include an attempt to establish whether any such awareness impacted on their performance, for example, whether the students wanted to please the teacher/researcher.

#### 4.1.3 The participants

Ten students participated in the ERP. Seven of them were students studying for a BA in International Business (BAIB). Three of the students were studying German as a part of the institution-wide language programme (IWLP), the ULP (university language programme). The BAIB students were in their final year and had spent the previous year in Germany. The IWLP students were at a similar language proficiency level, two of them had also spent an extended period in Germany, but they were not following the same degree course. At the highest level in the ULP, the approximate equivalent to level C1 in the Common European Framework, it is difficult to recruit viable classes. ULP-interested students of that level were offered the opportunity to take the language class within bespoke language classes for the business school, law school or as part of the modern languages degree course within humanities.

These three ULP students who opted to take this business German class, had varying backgrounds; one was a retired academic member of staff who had joined the ULP as an external student, one was an Erasmus exchange student from France and one was an international student from Belarus with law as her main study programme.

In terms of age, the majority of students were in their very early twenties, with the mature student at approximately 60 to 65 years of age.

---

<sup>31</sup> Besides having been told that they were being recorded, every so often a Camtasia recording pop-up window appeared which stated that the software was still recording.

In terms of gender, the group was split into 6 women and 4 men.

Two of the students were already accomplished linguists: with French and Russian as their respective first languages, they had already achieved a high level of proficiency in English, studying their main subject via instruction in English at the British university and studying this advanced German language module as well.

#### **4.2 The data overall, data collection methods**

For the core case study<sup>32</sup>, it is difficult to quantify data<sup>33</sup> in terms of number of words, if these were primarily to inform of L2 output. The created transcripts included the debriefing, and also data in form of screen descriptions, observations and comments or codes. The transcripts of student interaction consisted of all comprehensible student output, both in L1 and L2. All of these formed part of the data which fed into the analysis, but where it would not be helpful to quantify the number of words. On the other hand, using a quantitative perspective based on time, data can be described as consisting of recordings of approximately 2 hour per week for four to five dyads during a period of 4 consecutive weeks. Camtasia recordings provided visual representations of all screen movements and screen display as well as recordings of all talk and noises in the vicinity of the computer. The software allows the user to view the recorded actions infinite times, thereby facilitating in-depth observation of what the students did when they worked on their tasks. For example, the recordings reveal whether the students replied to emails by just responding to the sender of the message or by replying to all persons copied into the received mail. The recordings reveal whether students diverted from the task by engaging in non-task related activities, for example, reading private email. Camtasia also records any noises in the surrounding area of the computer, thereby providing a recording of the conversations students engaged in. These could be later transcribed and analysed. Since noises are recorded indiscriminately, other clues are provided, for example, the teacher's steps approaching or walking away, the rustling of paper when the task sheet was distributed, whispering between members of different groups who had been asked to only communicate via email. The Camtasia recordings therefore created new data in themselves: they created sound and visual documents which can be the subject to (1) transcription and observation and (2) analysis and interpretation. In the words of Mason (2003:104), the use of visual data can be seen as "partly a movement against what some might see as the extraordinary dominance of talk

---

<sup>32</sup> The same is true for the previous ERPs, even though the data collection methods differed.

<sup>33</sup> See Appendix 7 which lists all data of the core study and gives an indication of volume, even though not all of the data has been quantified (for reasons outlined in the text above). Appendix 8 provides a breakdown of the length of the Camtasia recordings per student per week.

and text in our research imaginations and methods, extraordinary because of the one-dimensional nature of this foray into, or construction of, what most would agree is a multi-dimensional, multi-sensory 'reality'." The Camtasia recording facilitates a closer approximation to the multi-dimensional reality of the interactions within the ERP. However, this fact created new challenges for the research process, since decisions had to be made about how detailed the transcripts needed to be in order to serve the pursuit of answering the specific research questions, and without becoming overwhelming and unreadable. The approach taken for this research project is elaborated below and in the section dealing with data management. The Camtasia recordings facilitated multimodal data collection, which was based to a large part in text, for example, written text on screen, and spoken text between participants. Here, a traditional approach to transcription could be applied which records words. However, a decision needed to be made on which and how to transcribe the other data collected. Flewitt, Hampel, Hauck and Lancaster (2009) discuss the problems related to multi-dimensional or multimodal data and its transcription. They state:

The recent paradigm shift in research into the communication of meaning [...] has major theoretical and practical implications for what are now accepted as analysable data, and for the analytic tools required to describe and interpret that data. It is theory which drives its choice and selection, and advance in thinking in any field of enquiry is likely to be followed by a parallel review of what constitutes evidence. Moreover, there is an essential relationship between the evidence and the methodological tools used to describe and analyse it. The diversity of multimodal data presents particular challenges, requiring descriptive and analytic tools that can both accommodate their variability and reflect their complexity. Transcription, however, still relies largely on the use of written script. As a result, the question of whether language-based techniques are a sufficient and acceptable way to mediate multimodal meanings, or whether multimodal data require a transformation of the tools used to describe them remains as yet unresolved. (Flewitt, Hampel, Hauck and Lancaster 2009:40)

Multimodal data as described by Flewitt, Hampel, Hauck and Lancaster comprise "bodily movement" as part of the communication (2009:42). Therefore, "from a multimodal perspective, embodied, representational activity includes language, rather than is language; the ways in which we direct our gaze, use facial expressions, gesture, move, stand, and *manipulate things* are an integral part of communicative activity" (ibid; emphasis in italics added). In this study, the multimodality of data did, however, not extend to body language as such, since video conferencing was not used and a visual representation of the participants' body language did not take place. Instead, multimodality of data manifested itself in recordings of traceable actions the participants took, the way they manipulated computer functions, when engaged in the CALL task.

The additional visual data recorded by Camtasia introduce, for example, cursor movements, typed and deleted text, copied and pasted text and its partial or

complete deletion afterwards. The use of Camtasia recordings as a data gathering technique added therefore a multitude of additional information to the previously mentioned data in form of words, for example, visual images representing specific actions which needed to be 'read' in a different way from the text-based research with a linguistic system at its core. The term linguistic system is used here in order to distinguish between a language based on words and a visual language as, for example, the picture of a heart signalling love, or one based on other coding systems, for example, the bee's 'dance' or the whale's 'song' to transmit information. The 'reading' of visual data is not only influenced by what the human eye can recognise, but also by the research questions and the knowledge the 'reader' brings to the endeavour: In this case and in pursuit to answers to the third research question the reader needs knowledge of computer operations in order to interpret the cursor movements which can be observed on screen. The mini-case study of one student's navigation problems highlights this (cf. chapter 5.3).

During week 1, group 5 was not represented; therefore only four dyads provided data that week. During the following weeks, some groups were incomplete, i.e., only consisted of one member. In those cases, the group's data was represented by one student only. In other cases, the students of one dyad could have worked with one computer only. For that situation only one Camtasia transcript was written. If, however, they worked with two computers, two transcripts were necessary since the screen movements would be different from the partner's, even though the dialogue between them would be the same. As an example, group 4 formed an effective team in which they both occasionally worked independently from one another, but also solved tasks together with one computer, therefore one screen. The transcript would differ when they worked on different tasks, for example, different Internet searches. In other words, the transcribed talk between the partners was identical, but the work they conducted on the computer and which could be observed on the screen differed. The description of the screen movements formed part of the data. And so did the visual representations of the actual screen movements, they too represent data and could be re-visited via the Camtasia recording at any time. Per student and machine, one Camtasia recording was made on which the transcripts were based. In case of comprehension problems due to poor voice projection, the recordings of both partners per dyad were utilized to create the transcription of the dialogues. Each machine recorded voices and noises in its vicinity. If a student leant away from their computer, the voice recording from their machine would fade in accordance with the distance from the computer. If that student leant towards the partner's computer, the recording on that machine may have been clearer. Taking into account the actual student attendance, there were 32 individual recordings of less than two hours each, overall 54.48 hrs of recordings. In order to facilitate students

to change rooms between classes, a session consisted of approximately 1 hour 50 minutes. The actual recording could be shorter since logging on and retrieving the Camtasia files from the machines before the next class in the computer room also needed time. During the first session, all recordings were shorter than in subsequent weeks since the ERP was clarified in class first, and the procedure of activating Camtasia and retrieving files was explained before students logged on. On average, the recordings lasted 82 minutes during week 1, 106 minutes during week 2, 109 minutes during week 3 and 112 minutes during week 4<sup>34</sup>. Another form of data consisted of the memos written during the data gathering and analysis process. Furthermore, the emails sent and received served as data.

The above highlights that the processes of communication (and therefore also data collection) in the ERP are multifaceted and that data presents itself on different levels. Firstly, there is the dialogue between partners which can represent more or less complete sentences which carry communicative meaning in their own right. In this case, reading the transcripts may enable a full grasp of the communication taking place. On the other hand, the dialogues may be incomplete without the computer screen, which in itself may represent a third constituent part of the communication since the information on screen may represent what the partners talk about or refer to (Leahy 2004b, van Lier 2002). This can be in a literal sense when new information comes in from others, for example, in form of incoming emails or information gained through Internet searches. In this latter case, reading the transcript does not enable full comprehension of the communication between partners. Only if the transcript is matched with the screen view, can further comprehension be aided. If the screen view represents, for example, an Internet site or an incoming email, the transcribed communication between the partners may become more complete and thereby comprehensible. If the screen view documents a drafting process of an outgoing email or document (e.g., a text summary), one screen shot may be insufficient to aid comprehension of communication details. In such a case a longer chunk of onscreen recording may be necessary in order to grasp the communication details. For example, a dialogue about the appropriate case for a specific preposition may only be fully comprehended when watching and hearing (or reading) the whole sequence which deals with the phenomenon. Here, the data of transcript and onscreen movement, the way students manipulated the computer for their purposes, are inseparable in order to create meaning of the communication. Furthermore, matching onscreen data with the transcribed dialogue between partners may aid comprehension when the screen content is not a literal part of the communication process, but when the student talk represents, for example, a comment on an incoming email.

---

<sup>34</sup> A breakdown of length of Camtasia recordings per student can be found in Appendix 8.

Additionally, that in turn may change the direction of the dialogue. For example, student 7 had to deal with computer problems which prevented her from using the VLE and therefore the university email system. She resorted to using her private email account in order to disseminate information to the other groups. When she opened her private email, she found a new message from her sister. This incident appears to have sparked a brief exchange with her partner (student 8) about family matters and the number of siblings (week 2, student 7, 1:20:47). Or a project-related incoming email may spark an evaluative comment in referring to the text received, for example, 'Oh god, it's those again' (Student 2, week 1 57:56) or 'We have answered that already' (week 1, student 2, 54:45).

These examples highlight that the nature of the data occasionally hindered the traditional coding and indexing process and necessitated a re-visiting of the Camtasia recording in order to shed light on the actual processes and communication which took place. Subsequently, a representation of what was going on could be more comprehensively conveyed in form of a narrative as part of mini-case studies, rather than in coded form. The examples also highlight how the spatial boundaries of the classroom may get extended and incoming information (here from a private email account) could have a direct impact on the communication in class. In incidents which require deeper questioning of communication processes a further level of data was utilised in order to make sense of the communication: This data presented itself in form of the actual use of the computer, the way students navigated and utilised the tool functions the computer provides. By analysing the way students navigated and used the computer, the communication between partners could be clarified. It could also highlight a discrepancy between student talk and student action. This latter case shall be exemplified in the case of Student 1 (week 1) in the next chapter. The dialogues between the students of group 1 and between them and the tutor would suggest a compliance with the task, but the analysis of the screen movements suggested that one of the students deliberately hindered the project. Careful observation of the Camtasia recording allowed a reconstruction of the actions the student decided to take. Here the onscreen movements did not aid comprehension of communication processes as named above, but rather illuminated process which would have otherwise remained hidden and unknown and /or may contradict what had been stated in students' comments. Observation can facilitate a "reality check" (Cohen, Manion and Morrison 2007:396) which can uncover whether the student took actions they claimed they did. As part of the data overall, previous ERPs may be used as data gained from re-visiting the field. Once categories and properties have been established through the analysis of the primary data gained via the Camtasia recording method, the findings may be tested against the data collected before.

Additionally, findings based on data from previous ERPs may be used to support or challenge findings gained through the core case study.

#### 4.2.1 The data chosen for the core case study

Two groups were selected as provider of the main data for the core case study. For the closer analysis, this thesis concentrated on groups 1 and 4. Group 1 represented the project leader; hence their performance had lasting impact on the project. Group 4 engaged fully in their task to work as researchers and provided requested information. Their approach was different from that of group 1. Both groups consisted of 1 BAIB and 1 ULP student each. In brief, the two dyads were chosen for the following reasons:

- They showed a good attendance record. Out of the ten students, three attended all four sessions, six students missed one class and one student missed 2 classes<sup>35</sup>.
- Because of their attendance they produced more recorded material which could be used for analysis.
- Group 1 was the project leader and their performance lastingly influenced the whole ERP.
- Group 4 provided an example for the three 'research' groups which were asked to provide specific information as requested by groups 1 and 2.
- Groups 1 + 4 consisted of 1 student each with a background in BAIB and 1 student each joining via the ULP route.

Since groups 1 and 4 were complete for most of the sessions, Camtasia recordings exist for 2 people for 3 out of 4 sessions. This was reflected in the length of recorded time available for the in-depth analysis, 23.93 hrs out of 54.48 hrs overall, even though only 2 out of 5 groups were included. However, the recordings of the other groups were also occasionally used in order to clarify questions borne out of the analysis of the material provided by groups 1 and 4 and thereby aided the analysis and interpretation. As an example, the tracing of content development<sup>36</sup>, for example, relating to the topic *pub, food and drink*, made it necessary to use data from the other groups too, in order to demonstrate how a content strand developed. However, data provided from groups other than 1 and 4 is only used to illuminate and explain findings borne out of data of groups 1 and 4. A focus on the core data is necessary to avoid being overwhelmed by the vast amount of information case studies produce. However, it is legitimate to use data from outside the two main groups analysed in order to support findings at the centre of the investigation. In addition, email exchanges were used for the analysis. Students had been asked to copy the tutor into all correspondence, but not all

---

35 Please see Appendix 9 for attendance details.

36 This addresses research question 1 and refers to the next chapter (5.1).

students adhered to this all the time. Indeed, during week 1, one student consistently excluded the tutor from the emails she sent. This case will be looked at in some detail in the next chapter (5.3). Emails could be retrieved if they were part of a reply which had copied the tutor into the list of addressees. Some emails could be retrieved by using the screen display of the recording. Several emails were sent without any new text added, but by just using the 'reply' button and, for example, attaching a document, or adding very short answers to questions which were posed in the incoming email. It is not particularly helpful to quantify the number of emails and number of words per email in a list, this would not add any value to the analysis. Instead, the length, content and clarity of emails sent will be looked at in the respective contexts of the research questions. This was particularly relevant, for example, in the case of student 1 (see chapter 5.3). Furthermore, the following texts were utilised in addition to exchanged emails and transcribed oral communication: the data used included memos written in the process of data analysis and interpretation and the screen descriptors, and was therefore a larger quantity than that of the corpus of student output.

Research projects undertaken by practitioners in their own teaching environment can be subject to external factors which may impact on the research conditions. Practitioner research rarely benefits from funding or other support and may not be able to situate the research project in the ideal setting. Here, the timing of the core case study was in the main determined by the availability of the computer room<sup>37</sup> and the permission to use the Camtasia software with university facilities.

In previous years, in which the ERP had been researched, additional software had not been used since I could not obtain permission to upload it to university computers. Therefore the booking of computer rooms for teaching purposes had been much easier since an alteration to the computers in form of uploading of additional software was not an issue. During those years, by choice, the ERP took place in semester 1 (for 5 out of the 6 projects), soon after the students' return from their year abroad. It was assumed that their oral proficiency was at a personal peak just after their return from being immersed in the L2 culture. For the last of the ERPs, the core case study had to take place during the second semester<sup>38</sup>, in April and May during the students' final year of study, therefore at a time they had spent several months in their L1 surroundings. In some incidents, the integration of the ERP into the syllabus at a later time caused a clash with the students' other commitments; for example, they had to attend job interviews and manage assessments during the second semester, common causes affecting the attendance at the end of the academic year during the final year of study. The attendance was

---

<sup>37</sup> For details of this please refer to the chapter 3 (methodology).

<sup>38</sup> The reasons for this were outlined in chapter 3.

therefore influenced by factors which could have been avoided during the first semester, for example, poor time management on the students' part caused by assessment deadlines: The day before the start of the ERP the submission of their final year dissertation was due which had a negative effect on those students' attendance who did not finish their thesis by the deadline. They did not attend regular classes of their degree programme, but used all available time to finish the dissertation<sup>39</sup>. Furthermore, one student had serious health issues to deal with. In addition to their attendance record, the two main groups chosen for in-depth analysis were groups in which the partners worked collaboratively and the language output was therefore considerable. Collaboration involves discussion which leads to higher L2 output than in a dyad where each partner just follows their own research question, but does not communicate with others in between. The third group (group 3) with the same attendance profile as groups 1 and 4, consisted of partners who came from different study backgrounds, law and business, and in part followed in their Internet research their respective areas of interest. This led to longer silent periods of work which made this group less suitable for analysis. The other two groups (2+5) showed a less favourable attendance record. For example, group 5 did not produce a list of questions since they did not attend the first week of the ERP. The first research question could therefore not be addressed in their case. Therefore, groups 1 + 4 were chosen because they provided extensive material for analysis and fulfilled the criteria of collaboration. The case of this case study consisted of the ERP, based on a collaborative task as a representation of CALL. The research questions relate therefore to a collaborative setting which elevates collaboration to an important criterion: The task rationale is based on collaborative activities and the four chosen students worked collaboratively within their dyads as well as with other groups. This thesis' focus is directed at the analysis of the usefulness of such a collaborative task in form of the ERP and in relation to the three research questions. When only one student of a particular dyad was present, collaboration was necessarily restricted to email communication with others and was therefore more limited. Consequently, the analysis concentrated on students 1 + 2 (group 1) and students 7 + 8 (group 4).

The approach of selectivity concurs with Cohen, Manion and Morrison (2007: 398) who state that in unstructured observation the aim is to find significance which can be later used for, for example, formulating hypotheses and testing those (397), rather than restricting observation by guiding the observation through already formulated hypotheses. The unstructured observation allows the

---

<sup>39</sup> The close temporal proximity of the deadline for handing in the dissertation and the start of the project may have also contributed to the students not familiarising themselves thoroughly with the task brief in advance of the lesson.

researcher to observe with a relative open mind, not directed by hypotheses. Obviously, it would be impossible to conduct research with a mind comparable to a *tabula rasa*: instead, any observer brings prior knowledge and experience to the research endeavour, in the words of Charmaz (2005:510) “[w]hat we know shapes, but does not necessarily determine, what we ‘find’ “. Observing with an open mind means that a strong focus lies in observing what comes out of the data, event, situation in relation to “the agenda of the participant” (Cohen, Manion and Morrison 2008: 398) and that of the research questions, which in the case of this thesis are not based on hypothesis testing. This has an impact on which observations are deemed more relevant over others. As Cohen, Manion and Morrison (2008:398) put it “selectivity derives from the *situation* rather than the *researcher* in the sense that key issues emerge from the observation rather than the researcher knowing in advance what those key issues will be” [emphasis in original]. Therefore, hypothesis testing is not part of such an approach.

The observation itself was guided by the research questions which were designed on the basis of theoretical underpinning embedded in SLA theory and pedagogy. In the case of the third research question (relating to the emergence of interactional patterns and student behaviour in the CALL setting), observation was rooted in the wish to uncover the “agenda of the participant” (ibid), to make sense of the participants’ use of technology in their attempt to complete the task.

#### Units of analysis

There are three areas of investigation which relate to the three research questions: (1) evidence of content learning, (2) evidence of language learning, and (3) interactional patterns relating to student–student and student-computer interaction.

The term ‘unit of analysis’ represents a much smaller unit than the area of investigation to which I will refer in the following as semantic units, linguistic units, and behavioural units, depending on the area of investigation.

#### Semantic units

Referring to Vygotsky, Lantolf (2000:7) discusses taking the word as a possible unit for analysis in order to study the mediated mind. According to Vygotsky the word represents the linguistic form and carries the meaning while also being central to the thought process. In the context of this thesis, the term semantic unit is not restricted to the individual word carrying meaning (e.g., play), neither to a compound as, for example, role-play or even electronic role-play. The term semantic unit (as used in this thesis) can be much larger and can consist of several sentences which were identified as semantic unit by questions like: What is going on? What is the person saying? (Charmaz 2004:507; Charmaz 2005:514) What category does the incident indicate? (Glaser and Holton 2004:paragraph 48). The unit of analysis is therefore directed towards broader concepts which go beyond the

more defined semantic meaning of a word as it is situated in its cultural context. Furthermore, for this first research question, the unit of analysis will concentrate on the individual questions students pose for themselves and their answers to these they produce in their presentations and written reports at the end of the project. It therefore concentrates on semantic units which are larger than linguistic units of analysis.

#### Linguistic units

With the term linguistic unit I am referring to a word or sequence of words which reflect particular structural or grammatical phenomena of the target language German, and which serve to highlight moments in which the students reflect on language, and language learning processes can become salient. For the purpose of this thesis, the analysis does not aim to find quantitative results, for example, the number of words produced in one minute (often seen as an indicator for fluency), or the number of self corrections (often seen as an indicator for accuracy), or as an indicator for complexity the number of turns per minute (cf. Ellis 2003). Instead, for the second research question the unit of analysis relates to linguistic phenomena and is embedded in SLA theory, in particular output theory. To name but two such units, analysis can include moments of hesitation where students consider which linguistic form to use. It can also include moments of hypothesis testing where students apply their (incomplete) knowledge of the language system to push themselves to new L2 output. Such incidents may become visible in dialogue, rather than input or output alone (Swain 1995). Through dialogue with the partner or teacher the student's reflection on language can become visible and thereby not only indicate the student's level of interlanguage, but also reflect the "dialectic unity in which publicly derived speech completes privately initiated thought" (Lantolf 2000:7).

#### Behavioural units

Behavioural units can be identified by similar general questions to the ones applied to semantic units, i.e., What is going on? (Charmaz 2004:507; Charmaz 2005:514) and What is the main concern being faced by the participants? (Glaser and Holton 2004: paragraph 48). The classification of behavioural units relied initially on the description of the screen movement which formed part of the transcripts. Transcripts were the basis on which initial coding took place. However, the Camtasia recording did allow revisiting the actual screen movements for infinite times, thereby facilitating in-depth understanding of the student choices regarding the computer use. The data accessed in order to analyse and interpret student behaviour is extended from the language based on text, thereby on semantic and linguistic units, to multimodal data as recorded in form of visual clues to on-screen activities. These visual clues reflect the student's interaction with the machine. The

coding process may take the form of line-by-line and sentence-by-sentence coding. The unit of analysis can therefore be just a line or a sentence, or in case of images, just a very short sequence which highlights a coded phenomenon. As already mentioned above, there are overarching ubiquitous questions which include What is going on? What are people doing? What is the person saying? These questions can be addressed by going back to the original recordings with Camtasia looking for, for example, behavioural units. Only through very careful observation of the screen movements and a comparison with emails and the discussion between partners could questions like What is going on? be addressed and some of the results be discovered. This will be elaborated below and exemplified in the following chapter in the context of the second and third research question. However, it is important to stress that the term unit of analysis is to be understood to be more fluid than rigid. Yin (2009) specifically refers to the possibility to revisit the choice of unit of analysis in the context of discoveries and findings. No firm boundaries to units were used, for example by stipulating that a unit consists of so many words or a given time sequence, for example, 1 minute only, or one line or one sentence. When analysing units, the focus lies in the general area of the research question being answered. Everything outside the unit becomes context. Abstracting further, one unit can become another unit's context.

### **4.3 Method of coding and indexing**

Approaching the data, the first questions applied were the actual research questions themselves: Can content be learned in this open framework? Does the role-play facilitate language learning? How can learning of content and L2 be demonstrated? What do students actually do, when involved in this kind of CALL task?

Those research questions soon revealed other questions, examples are:

- How are emails written?
- How is meaning constructed?
- How are L2 problems overcome?
- How are self-posed questions answered?
- Are self-posed questions addressed?
  - Not addressed?
  - Modified?
  - In process?

Questioning the data with a perspective slanted towards one of the individual research questions at a time, pointed towards new lines of inquiry to be followed up. For example, relating to RQ1, the matching exercise between self-posed research question and outcomes as reflected in the presentations and reports highlighted

main themes students were concerned with. These themes or thematic strands also reflected semantic units which were traced through the emails, transcripts, presentations and reports. Similarly, more questions emerged when critically analysing data in relation to the 3<sup>rd</sup> RQ which addressed the occurrence of interactional patterns: How do students use the electronic environment? Do they make use of computer tools, for example, electronic dictionaries? How do they navigate in that environment? What do they do? Why? Through these questions mini case studies emerged, i.e., representations of "critical incidents or events" (Cohen, Manion and Morrison 2008:257) with relevance for the execution of the ERP in real life, but which could not be captured meaningfully in categories or properties generated by GT.

#### **4.4 Data management**

The transparency of data management is an important part of reputable case studies (Yin 2009). The data of this case study has been managed through the creation of a data base in form of different files dealing with, for example, individual transcripts and findings born out of the process of analysis and writing of memos. Several files were created in the process of data analysis, coding and indexing.

The transcripts of the Camtasia recordings represented a record of the student talk per dyad (and week) and described the screen movements. Additionally comments on student talk and screen movements were included.

Divided into weeks and dyads, files were created which reflected the development of the task during that session and included the emails sent by the partners (not the emails received). The time of sending was included which is based on the Camtasia recording's time counter. The actual time the emails were sent, as indicated on the emails headers, was used as a message identifier when students sent several messages per session. However, that time cannot be seen as absolutely reliable in relation to real time since the different computers in the computer room were not synchronised. Therefore, the messages' time served only as an indicator of real time. A similar problem existed with the Camtasia time counter. Within the dyad, the time counter could serve as an indicator for the occurrence of an utterance on both transcripts. But since the students did not activate the software at precisely the same time, there could be a time lag between the utterances occurring on the two transcripts. However, the time counter was helpful in identifying the position on the recording and measuring the length of time of activities, for example, how much time was needed to open a blank email and then write and sent the new message.

Files were created which matched (based on verbatim text) the initial group's questions with their project findings as represented in their presentations and written reports.

In addition, files were created which matched the translated questions with summarizing translations of the findings in the presentations and written reports (Tables 7 and 8).

Individual files were created concentrating on key concepts, tracing when and how these concepts were used and by whom. For example, when dealing with the first research question which looked at content acquisition, the individual group's questions were compared with their presentations and written reports. In order to trace the origins of ideas, for example, in relation to the target market and the pub characteristics, new individual files dedicated to the development of that concept were created in which the progression of ideas was recorded.

In response to RQ2, individual files were created which listed occurrences of focus on form and the development of the expert role, particularly L2 expert.

Individual files were created which traced key concepts in relation to RQ3 (which inquired what students did while engaged with such a task). For example, one student in particular displayed persistent navigation problems throughout the project. Keeping a file dedicated to these occurrences served to facilitate looking at these in relation to when they happened, the time involved and context of these incidences as well as possible impact on the project as a whole.

A folder with retrieved emails was created, emails which had not been copied to the tutor (as the task had specifically requested). Those 'hidden' or 'invisible' emails could be retrieved by either manually copying the messages from the Camtasia screen display or retrieving them from later 'reply' messages which were copied to the tutor. Students often just used the reply-button (or reply to all) of the email system, in many cases the incoming message was still displayed below the reply.

The transcripts and the task development files aided the coding process for the third research question. Furthermore, the transcripts highlighted issues relating to the second research question, that of second language acquisition. Both the transcripts of the student talk and the screen descriptors highlighted when students focused on L2 issues.

#### **4.5 Summary**

In summary, this chapter expanded the methodological approach from the general and theoretical (previous chapter) to the specifics and practical approach of this case study, and its participants. In particular, the exploratory case study approach, the form of data collected, the transcription and data management were elaborated.

The next chapter will report and discuss the findings for each research question in turn.

## **5 Results and discussions**

---

This chapter is divided into three sections and will address and discuss the findings for each of the three research questions in turn. Even though an attempt was made to answer the questions independently, they are, of course, interdependent and findings relating to one question may well have an impact on findings of other questions.

---

This chapter will address the three research questions by concentrating the analysis on two of the five dyads, as expounded in the previous chapter. Preceding the answers to each research question, a brief definition of the phenomenon under investigation is given. The findings for each of the questions are followed by a short summary of the same.

## **5.1 Findings: Acquisition of content**

The first section will concentrate on the first research question which seeks to discover whether content can be learned in open task CALL as manifested in the ERP and how any such learning can be evidenced.

The first research question seeks to find evidence of students acquiring content knowledge while engaged in the ERP. In the context of the foreign language class under discussion, the transfer of content knowledge is not seen as the primary learning objective, but rather the improvement of accurate use of L2 in a variety of contexts relevant to the students' programme. It is therefore necessary to define what is meant by the term content as used here, before I present the findings.

### 5.1.1 Definition of 'content' learning

In foreign language classes, content is usually not taught in ways similar to content taught in, for example, in the natural sciences or thematic modules. Content acquired in natural science classes can be measured with quantitative methods. A positivistic approach to measurement of content learning may be possible in thematic modules, too. At NTU, the name 'thematic module' is given to modules taken in the context of language degrees in which students study, for example, L2-country related literature, film, history. The acquisition of content knowledge can be measured, for example, with a recall test of historical dates and facts, thereby applying a positivistic method embedded in a quantitative research paradigm. The primary function of language classes, on the other hand, is the study of the language system and the practice of L2. Of course, this does not happen in a content-free environment. For example, L2 may be studied for academic purposes or in subject-specific contexts, for example, law and may included practising specific skills, for example, letter writing. In the study discussed here, a German for business class, L2 was practised utilising business related content they had acquired through the English language as part of their main degree programme. Students were encouraged to draw on this subject-specific content, the skills, methods, and knowledge they had learned as part of their main degree studies, for example, the 4P-analysis, the SWOT analysis or any other particular knowledge relating to marketing, for example, the usefulness of focus groups and different forms of advertisement in different media, for example, TV, radio or newspaper advertisement. Additionally, the term content refers here to the material the students accessed, summarized and synthesised as part of their task fulfillment.

This could be related to the specifics of their chosen target group, the region, relevant cultural factors, competing products etc.

In the context of the present research, content therefore refers to the concepts discussed and developed as part of the task fulfillment, i.e., the development of a marketing strategy outline for a specific product. This latter point includes content learned as part of the collaborative process of construction of knowledge. The task of the ERP is anchored in constructivism and encourages constant communication and collaboration in order to solve the task as a team. The students worked in teams of two within the dyads and in five teams overall with different tasks' foci. The question whether content has been acquired can therefore be looked at from different perspectives. Firstly, students were asked to formulate their own questions they wanted to answer by the end of the project. Next, a comparative method was applied: The content of the final written reports and the presentations could be compared to the initial questions students had set themselves to be answered by the end of the project. This approach is based on the premise that if students had identified a lack of knowledge in a particular area, but had replaced this gap with knowledge by the end of the project, it could be assumed that content had been learned. Secondly, thematic strands were identified which developed during the project but may not have been anticipated at the beginning and may therefore not have been explicitly named in the initial questions. Typically, these thematic strands developed in interaction with others, a part of solving the task collaboratively. Both concepts will be elaborated below.

#### 5.1.2 Findings relating to research question 1

Can content be learned in this open framework? If so, how can it be demonstrated? The ERP task stated that students had to introduce a new product of their choice to the East German market and outline a marketing strategy for it. The students chose to introduce a pub chain based on a similar concept to the Wetherspoon chain in Britain which sold alcoholic drinks and simple meals at affordable prices.

#### 5.1.3 The comparative method of tracing content acquisition

As outlined above, the first research question was to be approached with a rather crude method of comparison; students firstly phrased questions themselves which they intended to have answered by the end of the project. Secondly, these questions were compared with the students' reports at the end of the project. If matches were found, i.e. students had been able to answer their own questions, it can be assumed that this content had been acquired during the course of the ERP.

The questions were borne out of their group tasks and could therefore vary considerably among the different groups. In a previous study, this approach had proved successful (Leahy 2004a). It could demonstrate that the questions had been addressed, and the answers in the presentations and written reports could be mapped against the original questions. At that time, the chosen product was Christmas Pudding. The project could establish more or less specific results to the self-posed questions. For example, the costs for TV advertising had been discussed (even though a precise price could not be established), and the question where to sell the product was answered specifically. The process of collaboration and discussion even sparked a further in-depth question of how to sell to the sales outlets, either directly or through a trader (Leahy 2004a). A simple matching exercise of questions with content expressed in later students' reports can work particularly well when the individual groups continue focusing on their questions with a view that the answers feed into the marketing strategy and can therefore be traced in the presentation and report. The sub-tasks were interdependent and based on the idea of developing a marketing strategy collaboratively. Team work and collaboration can only function well if the team works towards the common goal. If a team player does not cooperate, this can have an effect on the other groups, in particular if that student carries a key role in the project. In this core case study, initially, one group member with a leading role did not cooperate well, and delayed dissemination of information. As a consequence, the method for measuring content acquisition was affected, and a simple comparison of original questions with the outcomes as reflected in the presentations and written reports was less sufficient in demonstrating content learning than in previous years (Leahy 2004a, 2004b).

#### 5.1.4 Method of tracing content strands

In order to gain a deeper understanding of students acquiring content knowledge, a further method was applied. The general coding process applied to the transcripts of the Camtasia recordings identified broader themes in the development of the unfolding task which related to the content development. For example, through the process of discussing possible locations for their pub chain, students developed a better understanding of the geography of different federal states and university cities. This and other broader themes developed during the ERP could be traced through the interactions between the participants. Here, content acquisition becomes apparent through the mapping process, between transcripts of spoken interaction, email communication, written reports and on-screen movements (Leahy 2004b). The mapping exercise against the different forms of collected data can give evidence how content can emerge out of collaborative construction of

knowledge within dyads as well as part of the collaboration between all groups. The content development relating to particular topic areas will be shown below, but first the results of the comparison method will be introduced.

#### 5.1.5 Group 1 – Learning content: comparative method

Group 1 worked slowly. During week 3, both students prepared the presentation together, but did not complete it. They only prepared 3 slides of a powerpoint presentation: a title page, an introduction and a third slide with some information on the pub chain. During their preparation they concentrated on writing the note pages to aid their delivery. When comparing the initial questions with the outcomes during week 3 and 4, the note pages were included in the matching exercise. The note pages showed a close resemblance to the actual presentation delivery. Time constraints and their slow working mode prevented the group from preparing a longer, more detailed presentation: They simply ran out of time. At the beginning of the session, they had intended to split the presentation and had instructed their fellow groups by email accordingly; they would start, the other groups would follow with their respective presentations and thereafter group 1 would have another second part to introduce. Group 1 never reached the second part, not in the preparation nor presentation. During the previous week, week 2 of the project, student 2 had sent a summary of the work in which he had included the ideas of the other groups and was more specific about the product: pub chain. He had stated that their pub would be one with a difference, offering different types of beer from the Czech Republic, Poland, East Germany and perhaps England, and with an international menu. He had credited fellow students by name for their contributions, i.e., about breweries in Saxony, and about lack of competitors in the target area, and thereby acknowledged cross-fertilization of information as part of the collaborative project. However, group 1 did not acknowledge others in their presentation in week 3. In his written report in week 4, student 2 acknowledged that other groups' work was helpful and stated: "I must admit that some of the information [of the other groups] was usable, for example, the size of various cities in the target area and information about successful breweries in Saxony." However, a little later in his report, he claimed that group 1 had "mainly developed the project on [their] own."<sup>40</sup>

Table 7 matches the initial questions with the reported outcomes in weeks 3 and 4. The group had abandoned the original idea of a pub chain similar to Wetherspoon in the UK since the research for possible competitors in the German

---

<sup>40</sup> Verbatim the text read: "Ich muss zugebe, dass einige der Informationen Benutzbar waren." And a little later: "...haben wir hauptsächlich allein das Produkt ausgewickelt.". Student 2 continuously used the verb ,auswickeln' (unwrap) for ,entwickeln' (develop). This will be discussed under RQ2.

market showed that so called "Trinkhallen" with cheap alcoholic drinks already existed. Instead of following the Wetherspoon model, it was decided to follow an international concept similar to "Irish pubs", which were known to be very successful in Germany. The pub would incorporate British, Polish, Czech and East German influences, because, as the location of the first three pubs would be situated in East Germany, there would be close geographical proximity to Poland and the Czech Republic, while also having the link to the East Midlands, the (fictitious) company's head quarters: "European Development Ltd". The close proximity to other countries would facilitate offering their beer specialities while also keeping supplier costs down, since the locations for the pubs and the distance to the neighbouring states was confined to a relatively small geographical area. As location for the first pubs, three university towns were identified: Erfurt, Dresden and Leipzig. The pub style would be minimalist; they would offer pub games and a disco.

This brief summary based on the comparison of student-posed questions and their reports in weeks 3 and 4 shows that group 1 had learned content. In collaboration with the other groups, they had developed the initial idea of a pub chain catering for young customers with little available spending money into the outline of a more specific concept catering for a larger target group and based on a more specific theme, as described above.

**Table 7 Group 1 Comparison Questions – Presentation/Report**

(To aid the text flow, Tables 7+8 are written in English. The original student output (report only) which fed into Table 7 can be found Appendix 2, Table 12.)

Initial questions for group's research <sup>41</sup> (week 1 of project)	Answers to questions (week 3 - group result + week 4 of project - individual results)
<p>Questions for group 2</p> <p>What kind of marketing strategies do other companies in the German market have?</p> <p>How can we make a pub more attractive for our target group?</p>	<p>Week 3: use an international concept (similar to Irish pubs) with British, Polish, Czech and East German influences</p>
<p>Questions for group 3</p> <p>What is the favorite product in German pubs?</p> <p>Can you suggest German suppliers?</p>	<p>Week 4: close proximity to Poland and Czech Republic facilitates easy access to suppliers from those countries; that, plus concentration of 3 pubs in one region (geographic triangle) helps keeping supplier costs down.</p>
<p>Questions for group 4</p> <p>Is there a niche market?</p> <p>Is there strong competition in the pub market of the new Bundesländer?</p>	<p>Week 3: original idea had based its concept on British pub chain Wetherspoon, but was discarded since competition in form of "Trinkhallen" already existed in Germany.</p>
<p>What is our target group?</p> <p>Mainly young people like students who need cheap beer.</p>	<p>Week 3: Target group to include tourists.</p>
The following results developed during the project and were not part of the initial questions.	
	<p>Week 3: Our company name is European Development Ltd, main office in Nottingham.</p>
	<p>Week 3: Location: 3 big university cities in geographical triangle in Eastern part of Germany: Leipzig, Dresden and Erfurt, close proximity to Poland and Czech Republic.</p>
	<p>Week 3+4: small pub chain (initially 3 pubs)</p>
	<p>Week 4: pub style: minimalist, with music, on 2 levels, 1 level with pub games (billiard, darts), second level with disco; offers variety of interesting types of beer</p>
	<p>Week 4: reference to (but not elaboration of) usability of information on size of several cities in the target area and successful breweries in Saxony.</p>

<sup>41</sup> The questions in the table 7 represent a translation of the student work. The right hand column represents a summarizing translation, i.e., in order to save space some student comments were paraphrased and translated.

#### 5.1.6 Group 4 - Learning content: comparative method

As for group 1, the results of group 4 were matched against their original questions (Table 8). Group 4 worked quicker and often more methodically. Glancing at the Tables 7 and 8 indicates already that the two groups produced quite different results. Even though they did not have navigation problems based on the lack of their computer skills, as student 2 did, they also encountered technical problems with their computers which could not be remedied by the local technical support staff<sup>42</sup>. In particular, their problems manifested themselves in not being able to send emails via the VLE (and therefore using university email) and not being able to open or, in some cases, download attachments. They could only view emails in the preview pane. The discussions this sparked with the two members of the technical support staff and the fact that the problem could not be solved, wasted the students' time they would have otherwise spent solving their tasks.

#### 4-P-Analysis

Besides these difficulties, group 4 was able to provide the following information, based on their 4-P-analysis: the analysis of product, place, promotion and price. Using the 4-P-analysis was a suggestion by the BAIB student in the group which indicates that she introduced and applied her subject-specific knowledge to the task.

#### Product

Regarding the product, their research did not produce much information about the existence of a pub chain in Germany. They discovered that chains did exist, but mainly for restaurants rather than pubs. They were aware of the success of Irish pubs which could be found in many German cities, but could not find any information on pub chains utilising German atmosphere as part of the brand. They therefore concluded that this could be a niche market. Based on the initial idea of using the model of the English chain 'Wetherspoon' for the German pubs, they found one main competitor, the "Schnäppchen-Kette". They discussed the target group and sought a decision from group 1, the project leader. While waiting for a decisive reply they focused on tourists as a target group.

#### Place

A general framework for the place was given in the task brief. It stipulated to introduce the product in the new Bundesländer (federal states). Group 4 searched for a map identifying the region and disseminated it to the other groups. They

---

<sup>42</sup> The nature of the technical problems and the way students dealt with them is discussed in answer to research question 3.

recommended using the capitals of the federal states as initial locations for the pubs since tourists would be frequent visitors.

#### Price

The group's third question dealt with price. They used the web site of the Federal Statistical Office and summarized relevant findings of a report on the amount of money people spent on food and drink outside the home. The report indicated that the sum of money available had decreased from the previous year. Group 4 was able to disseminate this information, as well as costs for draught beer at a pub chain in comparison to an ordinary pub nearby, which they had collated from different other websites.

#### Promotion

The last main question this group approached was that of promotion. In order to address the question of meaningful promotion of the product, students would have had to do extensive research on the demographic characteristics of their clients, i.e., tourists, but reported that the lost time due to technical difficulties prevented them from completing this task.

The same matching exercise as for group 1 was done for group 4.

**Table 8 Group 4 Comparison Questions – Presentation/Report**

Comparison between initial questions and reported outcomes  
(To aide the text flow, Tables 7+8 are written in English. The original student output (report only) which fed into Table 8 can be found Appendix 2, Table 13.)

Initial questions for group's research <sup>43</sup> (week 1 of project)	Answers to questions (week 3 + week 4)
Strategie What kind of strategy? – global or local	
4 P's Product Do we want to offer food and drink? What kind of style? – fashionable, old-fashioned, 'retro', cosy? What kind of interior decor / furnishings? – games? dancing? music? Which target group / age group?	Our aims: Product What is the situation for pub chains in Germany? [newly introduced question] <u>Week 4: students 7+8</u> The first question was about the product itself. We did not find much information about the so called 'pub market' because pub chains are rare in Germany. Chains exist, but rather for restaurants. It could be said that Germans are not used to chains. There is a chain of 'Irish Pubs', but not of pubs utilizing the German atmosphere, i.e. there is a niche market. "Schnäppchen-Ketten" are our main competitor. For this outcome we mainly used our own experience, otherwise we used, of course, various web sites. <u>week 3: student 8</u> Tourists (computer problems led to lack of time – therefore little information on the target group)
Place Where will the pub be? – city centre, shopping centre, suburb	<u>week 3: student 8</u> Location: The new Bundesländer The new Bundesländer are: Sachsen Berlin-Brandenburg Meckelnburg-Vorpommern Sachsen-Anhalt Thueringen. Location <u>Brandenburg</u> : Potsdam - Cottbus – Brandenburg/Havel <u>Mecklenburg-Vorpommern</u> : Rostock - Schwerin - Neubrandenburg <u>Sachsen</u> : Leipzig - Dresden – Chemnitz <u>Sachsen-Anhalt</u> : Halle (Saale) - Magdeburg - Dessau <u>Thüringen</u> : Erfurt - Gera - Jena And, of course, Berlin!!! <u>Week 4: students 7+8</u> The second question dealt with the location. First, we showed everybody a map we got from the <i>Internet</i> . It showed where the new Bundesländer are. Then we recommended using the capitals of these states, because tourists visit those.

<sup>43</sup> The questions in table 8 represent a translation of the student work. The right hand column represents a summarizing translation, i.e., in order to save space some student comments were paraphrased and translated.

<p>Promotion What are the demographic characteristics of our clients?</p>	<p><u>week 3: student 8</u> Tourists are our main clients We did not find much information. Our computers are kaput! We did not have much time to search for information about tourists. <u>Week 4: students 7+8</u> The last question was about promotion. We did not have much time for it. Except, that tourists are our main clients. Our computers were kaput, because of that we had little time to research tourists.</p>
<p>Price How much does the product cost? It depends on style.</p>	<p><u>week 3: student 8</u> Statistical information on people's spending on food and drink outside the home; people spent less than in previous year. In 2004, 351 Euros/person were spent on food and drink outside the home. Price per beer, comparison with main competitor; draught beer (0,3L) in the Schnäppchen-Kette in Bad-Gnadersheim costs 1,05€ (for comparison: 1,80€ in a nearby pub). <u>Week 4: students 7+8</u> We collected information from the <i>Statistische Bundesamt</i> (2004). The report about money spent in 2003 deals with the money people have available for food and drink. Today, people spent less than before. In 2004, people spent 351 Euros/person for food + drink outside the home. We found examples on a website of a chain. E.g., a draught beer (0.3L) costs 1,05 Euros in Bad Gnadersheim. (For comparison: 1,80 Euros in a pub nearby).</p>
<p>Our opinion of the ERP</p>	<p><u>Week 4: students 7+8</u> In the beginning, we found the whole process a little confusing. It was difficult to decide about the product. That was most important, therefore we lost a lot of time for our research. We also found research in German difficult, also, we worked on too many levels. The presentation was the easiest, even though only one person did it.</p>
<p>Recommendations</p>	<p><u>Week 4: students 7+8</u> It would have been better if the teacher had decided on the products in advance, which would have enabled us to research quicker and better. I.e., the teacher should give pointers about the products that we do not lose time. E.g. "Your company would like to launch a pub chain, you work on the project ..." -Shortly before the ERP, we should decide on the product so that we can start quicker. [This was part of the task, students had been asked to consider the product a week in advance and bring their suggestions to class. Unfortunately, it did not happen.] -At the end of each session we should meet briefly to summarize and clarify what each group should be doing. -We think that it was a good idea because we were forced to work on our own. We also developed many skills in German: make decisions, research, summaries, written communication and presentation.</p>

In conclusion, the results above show that group 4 acquired content knowledge through their research, and their email communication demonstrated that they disseminated it to their fellow students. In particular, they gained understanding of the geographical position of the area chosen for the product launch, including the

proximity to the neighbouring states. They were able to correct a previously held (but wrong) belief that Schleswig-Holstein is a new Bundesland, which had joined the Federal Republic of Germany after re-unification. They also familiarized themselves with the cities in the target area and identified university towns. Furthermore, they were able to identify a direct competitor to their initial concept of a cheap pub chain, and compared prices for drinks in a variety of German pubs. They were able to establish the average amount spent by German citizens on food and drink outside the home. These findings show that students 7 and 8 had a clearer understanding of geographical, political and economic facts about Germany after having participated in the ERP. The results therefore demonstrate that both groups acquired content knowledge. In addition to the simple comparison method between posed questions and summaries in presentations and reports, the main topic areas students had identified, were traced and highlighted, initially in form of tables. Three main re-occurring topic areas were found: the topics of target group for their product (1), the initial location for the launch of the pub chain (2), characteristics of the pub, as well as its range of food and drink (3). The following outlines the development of these content strands. It reflects the collaborative character of the construction of content knowledge. In order to demonstrate the collaborative nature of the construction of knowledge and ultimately the acquisition of content, the development of these strands needed to be traced through all the groups. For the purpose of this section, emails of all the groups are therefore taken into account, and not only groups 1 and 4.

#### 5.1.7 Content development relating to the topic 'target group'

During the course of the project, the characteristics of the declared target group of their product 'pub chain' changed due to different dyads making suggestions in relation to their particular research they undertook, and the lack of direction from group 1, which was supposed to lead the project. Negotiation about content, as it was defined above, had been an intended part of the task; it had been envisaged that negotiation would develop out of the content itself, the perspectives taken by the different groups and possibly clarification attempts. Collaboratively developing the direction and the specific content, was part of the task design and was based on pedagogical considerations, as previously outlined. However, it had not been envisaged that group 1, the leading group enacting the role of the employer, would hold up the development of the ERP by not responding to the task specifics or other groups' requests. When they finally responded, they did so with considerable delay. In accordance with the task brief, group 1 decided the target group for the product during week 1: The pub aimed to attract "young people like students and other people who need cheap beer". As already mentioned and substantiated in some

detail below (embedded case story 1) this information was sent with delay at the end of the first session, firstly to the tutor and then individually, one at a time, to one representative of groups 2, 3, and 4. However, group 1 did not answer explicitly by naming the decision regarding the target group. Instead the statement could be found at the end of the list of questions group 1 had drawn up. It appears that this caused it being overlooked once it had been sent out. This delay in responding and the lack of responding decisively, led to the other groups offering suggestions, in order to move the task on. For example, group 2, enacting the role of the advising market research company, suggested concentrating on tourists, while group 4 also suggested targeting primarily students.

At the beginning of the second session, student 2 of group 1 stated that he found their own definition of the target group too restrictive. While this was not communicated to the other groups and these still lacked precise direction, student 9 of group 5 suggested focusing on tourists, rather than students since the latter would have less money to spend. This notion was echoed by student 3 of group 2 who independently from student 9 concluded that tourists would be the target group, as well as the local population and students. Student 9 then sent two further emails in which he suggested extending the target group again, from firstly tourists, to tourists and Germans, to tourists and families. This distinction seems a little odd and has to be seen as introduced independently by different groups. Of course, Germans can represent families. The students presumably want to distinguish between tourists as non-German nationals, and those people who do not reside in the named cities and who can be of any age group, including families with young children and can be German nationals, but still be tourists to the named cities. At the end of the second session, group 1 finally communicated to the other dyads that the target group would consist mainly of tourists. The decision on the specific target group had an impact on other decisions, for example, the location, the variety of drinks on offer and their prices.

#### 5.1.8 Content development relating to the topic 'location'

In week 1, group 4 suggested the options to either concentrate on Berlin as location for the launch of the pub chain, or university towns in the new federal states. They highlighted that a decision would be influenced by the intended target group and pointed out that they had not yet received that information from group 1. Simultaneously, group 2 suggested concentrating on cities visited by many tourists, for example, Munich, Cologne and Berlin, all of which are situated in West Germany. Just before the end of the class, group 4 reminded group 1 again to come to a decision regarding the target group. Group 4 reiterated their suggestion to aim at students and therefore to choose university towns as a location. In the end, after

several email exchanges, the location was not decided during week 1. The target group had not been determined, an informed decision on the location was therefore not possible. In week 2, student 1 of group 1 communicated to student 3 (only) of group 2 that they had to operate within East Germany and student 3 replied that they would need to look for other appropriate big cities in the area. She then passed that information on and instructed group 4 to research appropriate locations in form of large cities. Group 4 responded by sending a map of the target region and later a list of the big cities for the five relevant federal states. In the meantime, group 1 reached the decision to concentrate on 3 cities initially, namely Erfurt, Dresden and Leipzig, and communicated this information to all. In their discussions within their dyad, students 1 and 2 talked about their chosen locations within East Germany to have the additional advantage of close proximity to Poland and the Czech Republic. In that context they considered to name the pub 'Europa Ost'<sup>44</sup>. At the end of class, student 2 of group 1 sent another email in which he further justified having chosen these specific cities: They were located in an area without a similar pub chain, therefore within a niche market.

#### 5.1.9 Content development relating to the topic 'pub'

During the first week, students floated their ideas about the product. For example, group 2 (the marketing consultant) asked group 3 (one of the three research groups) whether they had any information regarding popular pubs besides German or Irish, for example, Turkish style. 13 minutes later, in the absence of a decisive lead, they suggested to group 1 a style which reflects 'German culture' and offers German and English food. In week 2, the fifth group was represented by student 9 for the first time during the project. Group 5 was to concentrate on cultural differences between the UK and Germany. Student 9 referred to the success of the Irish pubs and concluded that it was caused by a clear concept. He suggested to transfer the principle to their chain, but to model it on the idea of an English pub with a target group of Germans and tourists. Furthermore, he suggested offering English lager and food in form of fry-ups, as well as English pub games, for example, pool. Group 2 responded quickly that they had no indication that tourists would want that kind of food, and in her opinion, German beer would be better than English lager. However, she referred this to group 1 for decision. Group 3 contributed their research results in form of information on local beer brands and breweries in Saxony, one of the target regions. These suggestions, particularly those of group 5, inspired group 1 to finally decide on some characteristics of the product and communicate the decision to all: The pub would reflect an

---

<sup>44</sup> 'Europe East' or 'Eastern Europe'.

international style rather than English, and because of the location in Eastern Germany they would offer beer types from Germany, and the neighbouring states of the Czech Republic and Poland. Of course, they would also offer English beer, since they were a British company with their head quarters in the Midlands. Soon after group 1 had made this decision, group 4 contributed their findings of the session's research regarding the competition, i.e., that only one chain operated with a similar concept in Germany. Group 3 pointed out that group 1's decision on the international pub represented a move away from the Wetherspoon model, a fact which was seen positive by group 2. Group 2 then instructed group 4 to supply information on prices for food and drink in existing pubs in the region. They received this information a few minutes later. Considering the logistics of the supply of beer, Group 1 asked group 3 whether the pub would have to buy the beer from one brewery only. She was trying to ascertain whether the same system as in Britain applied where pubs can be owned by breweries and therefore their own beer would have to be sold. They received the reply that this would have to be clarified at a later date.

Independent from one another, student 9 of group 5 and student 2 of group 1 wrote a summary of the decisions made up to that point and sent them to all. Student 2 of group 1 concentrated on a mere summary, student 9 of group 5 added a subject-specific concern. As a business student, he was aware of the importance of being clear about the target group. He pointed out that the vagueness about the latter could lead to considerable logistical and financial problems: too many different types of beer would mean many different suppliers which would increase the costs. As a "start-up" company they would not have the financial means or contacts to do this.

The above shows the development of content discussions in some detail and can give insights into the unfolding of the project. In particular the development of topic strands exemplifies the collaborative character of the ERP and the fluidity in content. Students' contributions to the discussion and their subsequent decisions determine the direction in which content develops. This fluidity and non-predetermined, non-prescribed content allows the students to follow their 'professional', subject-specific judgement and thereby be in control of the subject matter at the centre of their L2 practice. L2 practice becomes meaningful since students have the opportunity to discuss and develop content of their choosing, using subject-specific skills, including evaluation skills embedded in their subject-specific knowledge, for example, as expressed by student 9 above who cautioned against vagueness regarding the target group definition.

The findings above relate to the core case study which benefited from comprehensive data collection with the Camtasia software, in addition to the generic methods used in other ERPs, for example, the writing of individual reports

during the final week. Previous ERPs had to manage with less sophisticated recording methods. Since the data collection methods varied, a like-for-like comparison of data of all ERPs is not possible. However, precisely because the data collection methods varied, the previously discovered insights can feed into a triangulation approach.

A longitudinal perspective towards the ERPs can be taken, irrespective of some of the differences in data collection methods. A longitudinal perspective gives the opportunity to show how three previous role-plays developed content in relation to three other very different products: a computer game, Christmas pudding and 3<sup>rd</sup> generation mobile phones.

#### 5.1.10 Longitudinal perspective: Content acquisition

Taking a longitudinal perspective, the diversity in the students' approaches to the chosen product can be shown and successful acquisition of content in different years and projects can be evidenced. In the following, examples of content acquisition in form of collaborative construction of knowledge in relation to three previous ERPs shall be given.

The first example of the interactive process of content learning and decision making is taken from the very first ERP which used a computer game as chosen product. Internet research into the market conditions and competitors of games brought up the question of potential differences in boys' and girl's interests in computer games. The idea that two different concepts, one for boys and one for girls could be needed was initially considered, but not developed. In relation to the geographical differences between the Eastern and Western parts of Germany, the marketing specialists (group 2) suggested that interviews and questionnaires could be used to develop a "generic proposal" for the whole target market. Similarly to the findings relating to the core study, in previous studies students were able to combine successfully their subject-specific knowledge with the use of L2. Taking the market conditions into consideration, in the example below the students concluded that the alternative of a more tailor-made marketing strategy geared specifically towards the East German market would be too cost-intensive.

(1) Because of this problem, one finds rather less demand in the new than in the old federal states. It does not make sense to research a new market strategy because of the increased pressure on "profit margins". The costs to draft a new strategy are far too high to research a new strategy. We believe it would be better to develop a uniform market strategy for a homogenous German market.<sup>45</sup> (ERP1; group 2)

---

<sup>45</sup> The numbers in brackets just before the quote (in English) correspond with the numbers in front of the original quotes (in German) in Appendix 2.

The ambivalence of the second part of the third sentence of this quote reflects the ambivalence in the original. However, the quote makes the students' thinking clear: They do recognise the difference between the target groups in West and East Germany, but in view of the costs of detailed research into these differences, their cost-benefit analysis points towards one approach for the whole of the German target market. This example shows, on one hand, how the second group fulfills its role as advising company and market research specialist. They successfully exercise their professional judgement and advise the other groups accordingly. On the other hand, it also shows the influence the application of the students' professional judgement has on the development of the content strands: Had a differentiation of East and West German markets been pursued, the market strategy would inevitably have developed differently.

The second example is taken from ERP number 4 in which students chose Christmas pudding as their product. They were able to establish potential and existing competing products. A nice feature of that ERP was that students took the initiative to email a German department store in Berlin (KaDeWe) in order to find out whether Christmas pudding was already sold in Germany. The classroom L2 practice exercise extended from the classroom walls and reached out into the real world in another country (Leahy 2004a). A similar example of extending the teaching and learning situation of a role-play to the real world was reported by Dracup (2008). In that study students were involved in an online role play which did not involve SLA, but created a business situation in which students had to address change in management. They got very involved with their roles and contacted an existing organisation and a union, thereby enhancing the purpose of the task and extending it to meaningful communication in the real world in order to gain content knowledge.

Returning to the fourth ERP, through discussion it was decided to brand the product Christmas pudding as a luxury item and thereby narrow the potential target group. Large parts of the ERP concentrated on detail discussions about ingredients and food allergies (e.g., against nuts) as well as the question whether to include alcohol. The discussion about ingredients allowed students to use the knowledge gained during their year abroad in order to make decisions on how to design and market their product. Content was acquired in collaboration with all dyads and in the collaborative process the product was altered, while still retaining a distinct English character (Leahy 2004b).

The following examples are taken from the 5<sup>th</sup> project dealing with 3<sup>rd</sup> generation mobile phones (G3) and serve to further illustrate the diversity and fluidity in content development: The first example of the fifth ERP illustrates how learning content manifested itself through a transfer of previously acquired subject-

specific skills and knowledge to the language learning situation, while conducting the work through L2.

Group 5's task required to identify potential cultural differences and economic problems which could hinder the introduction of the product to the new market. The chosen product for that particular role-play was a (for the time) very advanced mobile phone which was new to the home market as well as the target market, therefore little information could be found on the Internet. Interpreting the void of required information, the students concluded that there would not be any cultural differences, because customer groups in both countries would consist of affluent persons with similar characteristics, for example, business people. The students' assumption that cultural differences between the target groups in Germany and the UK would be minor, can be supported with observations regarding the so called "third culture", as defined by Featherstone (2007:146): He suggested that the "increased international flows of money, goods, people, images and information have given rise to "third cultures", which are transnational and mediate between national cultures." With the target group of (international) business persons in mind, the students' assumption was a feasible interpretation. As indicators for economic problems, the group chose to take unemployment, average gross income, inflation, and the decrease in demand for similar products. Being students of European economics<sup>46</sup>, the participants were aware how to find figures relating to these topic areas and how to interpret them. They researched the figures on the Internet and concluded the following:

(2) The figure of 1,756,000 shows how many people are unemployed in East Germany. In comparison to East Germany, West Germany has 2,951,000 unemployed. It is important to mention that the population in the West is much larger than in the East. High unemployment means less income, and therefore the company which wants to expand (group 1) must proceed quite carefully. There is a smaller chance that the people in East Germany can buy a more expensive mobile phone. Another point becomes clear. Fearing unemployment, people save and buy less and less often.<sup>47</sup> (ERP5; student 9)

The same student continued with an interpretation of the average income in different areas of employment, for example, in manufacturing industries in both parts of Germany, stating that

(3) [t]his means that the people in the new federal states have less disposable income and potential customers may not be able to buy expensive goods. This could produce difficulties for the suppliers.

Her partner explained the group's procedural decisions even more clearly:

---

<sup>46</sup> The earlier ERPs were conducted with BAEB students, i.e. European business, while the degree pathway was later changed to BAIB, international business.

<sup>47</sup> Translated from German to English without taking note of any linguistic errors in the original. In order to make the text more reader-friendly, the student work was translated to English, except, of course, when the example refers to language acquisition issues. However, the original in German can be found in Appendix 2, identifiable by the number in brackets just before each of the six quotes.

(4) World-wide, mobile phones have similar designs and are used for similar reasons, therefore a concentration on cultural differences for users of mobile phones was not possible. As a result we concentrated on economic problems which could hinder the introduction of the product to the market.

It is noteworthy that both students drew heavily on their subject-specific knowledge in every part of this electronic role-play. Additionally, the task scenario encouraged the students to draw on their experience during the previous year spent abroad and thereby enhanced their role as 'subject experts'. They had gained an insight into relevant current social, economic, political and cultural issues of the target country, which they could transfer to the task. Using the language was therefore no longer an exercise in itself, but the language became a tool to access information on the Internet and to communicate 'new' meaning, which was derived through application of prior subject-specific knowledge and skills, for example, analysis, summary, synthesis, interpretation and collaboration with the partner and other groups. Kaufman (2004:306) refers to the learning in such framework (using ICT) as being "extended [...] to nonlinear, multidimensional, and interactive and ha[s] greatly expanded the horizons of learners beyond their local communities into a global context."

A different example of how content knowledge was acquired can be seen through the following comment:

(5) It was nearly impossible to find East-German-specific data, because since 1989<sup>48</sup> there is no "East" and "West" Germany. Therefore we had to look for regional-specific data and use that type of data. (ERP5; students 7+8)

The students needed data referring specifically to the new federal states. The search term used initially was East Germany. Since the political unification of the former German Democratic Republic with the Federal Republic of Germany, the terms East and West Germany were not used on official websites, instead the actual names of the new five federal states involved were used. Therefore students needed to know these names in order to find the relevant information. Once they realised this, they could search for a map of Germany, find the names of the relevant Länder and use those in a search on the website of the federal statistical office. The information received was a breakdown by federal state. In order to produce an overview of the entire region formerly often referred to as East Germany, the students had to collate the information again. Through this experience, they acquired an appreciation of some of the changes brought through unification, for example, political and demographic regional differences. The names of the new federal states presented an obstacle for most students during all the

---

<sup>48</sup> Strictly speaking, this is not quite correct. Even though the dividing wall came down in November 1989, the actual political unification happened in October 1990.

years the ERP took place. One positive learning outcome was the familiarisation with Germany's new geographical, political and economic landscape.

The final example of content learning shows how team work was recognised as a group effort to solving the problem, and thereby the collaborative character of the learning process was recognised. Student 4 (ERP5) wrote:

(6) I worked in group 2. We had the task to develop a marketing strategy for 3G mobile phones. In order to fulfill this task, we produced a list of questions. Group 1 provided the answers to the questions: 'What are 3G mobile phones? What is the target group? What is the business concept? What is the budget?' Group 3 helped us with the questions: 'How long are they on the market?' and 'In which countries can 3G mobile phones be found?' Group 4 provided answers to the questions: 'What are the characteristics of a German user of mobile phones and the German mobile phone market?' and 'Who are the competitors of the product and company?' [...] During the first week we did not do that much, we had to wait for group 1 in order to receive a business concept. We sent our requests to the other groups per email and then had to wait for the replies, in order to begin writing our specific strategy. (ERP5; student 4)

As shown above, collaborative problem solving also meant collaborative construction of knowledge. In such an endeavour, time is a variable, which cannot be fully controlled by the participating parties. As in authentic professional situations, members of different teams did not have the required information at their fingertips all the time, but had to wait for other team members to provide the requested information. In previous studies, a minor delay in information distribution was observable and could be expected. In the later core case study, the initial delay in forwarding information was exceptionally severe.

Mimicking real-life working conditions can contribute to the aim of producing students with employability skills and team working skills. This teamwork concept was recognised by the student above. It was also recognised in other cohorts and expressed in the debriefing session of the core case study group.

The transfer of the decision regarding choice of content from the teacher to the learner was intentional and an inherent part of the task brief. The examples given represent further evidence that students used this freedom to shape the content in which the L2 practice took place. None of the examples above reflect content knowledge being acquired through knowledge transfer from the tutor or institution to the student. Instead, students set out to find answers to questions developed and formulated by them, hereby creating knowledge collaboratively.

#### 5.1.11 Discussion

The ERP projects prior to the core case study seemed slightly more productive in creating collaboratively developed content. Even though the first week always involved some time where students had to wait for email replies while the direction

of the project was still developing, the core case study seemed to experience extended delay in exchanging information. The reasons for the hold-up shall be discussed in section 5.3 which reports on an embedded mini case story which traces the cause for the hindrance.

Students liked the activity and (during the debriefing) highlighted the positive effect of learning in an e-environment as preparation for their future professional work. They pinpointed the cause for the project's difficulties as situated in group 1's slow responses without knowing the reasons and motives for this. They independently offered solutions for future projects in form of brief face-to-face meetings.

At the start of role-plays involving ICT, initial slow progress can be expected (Dennen 2000), but not to the degree as experienced in the core case study. However, despite some difficulties in information flow, this section showed evidence that the ERP facilitated acquisition of content knowledge, not via knowledge transfer from a teacher to the students, but rather via collaborative construction of knowledge within a subject-specific context relevant to the particular group of business students, for example, content regarding some product specifics, approaches to marketing the product, and the geographical and political landscape in the Eastern part of Germany.

The diverse examples from different ERPs show that during each one of them the content learned was entirely directed by the students themselves. Initially, they decided on the product, followed by decisions on lines of enquiry. Next, they carried out their research. The lines of enquiry were not cast rigidly, but allowed for further decisions while working on the task and possibly a change in direction. Such changes in direction could be born out of collaboration with one another, or stimulated by material discovered during their Internet research activities. As an example for such a change in direction in the core case study, the definition of the target group can be named. The initially very narrowly defined target group consisting of lower income customers was expanded to mainly consisting of tourists, therefore customers with more disposal money than the group named previously. The decision on the target group was preceded by a lively email exchange between different groups which gave opportunity for L2 practice.

This fluidity in content is intentional and an integral part of the task. The examples cited from different ERPs show clearly how students followed their interests and incorporate their subject-specific knowledge in the process of fulfilling the task. The open task corresponds with the pedagogical approach of constructivism (Altmayer 2002; Kaufman 2004; Wolff 2002) with emphasis on learner-centred tasks which are based on authentic materials which are meaningful to the learner. The teacher's role changes from the typical role of prescribing the content of lessons to one in which they support their students in areas of interest to

the learners, content chosen by the learners. Teachers and students are not bound by prescribed material, for example, in form of textbooks. Textbooks may not be as current and their content may be of little interest to specific student groups. The time which inevitably elapses between the concept for a textbook, the development and implementation of the idea and the eventual commercial availability can lead to a lack of topicality and currentness of the material. Furthermore, topics for textbooks are subject to projections for commercial success. If the target group for particular topic areas is small, the production costs would be greater than the return through sales. This may well prevent any potential interest by publishers to materialise. The student needs on the other hand, may be situated in areas which are of little commercial interest or which constitute at least a commercial risk.

The answer to RQ1 has shown that the task which has been investigated here is rooted in language for specific purposes. The general framework positions the task in the subject area of business and relates to marketing, but since the product at the centre of the marketing strategy was not specified by the teacher, students could follow their own ideas and interests and thereby feel ownership of the L2 learning activities.

The term subject-specific language or language for specific purposes is not straight forward and can be problematic. Schröder (2004) discusses the term 'language for specific purposes'; he states that it has not been universally defined, and it does not only relate to the language used by the subject specialists. He acknowledges that the constituent parts include lexis and structures specific to the language for specific purposes, but points out that the language is used by interested lay people as well as the specialists themselves. The potential users of languages for specific purposes may also come from very different cultural backgrounds and the choice of texts for language study purposes may therefore be crucial. Schröder particularly refers to Chinese learners of German for business purposes, but his conclusion is applicable to all learners from different cultural backgrounds than that of the target languages. Schröder (2004) postulates that L2 texts for languages for specific purposes should be chosen from areas relevant to the learner group and support elements of intercultural understanding. Learner relevance is also generally seen as a basic requisite for evaluation of learning material, for example, in CALL (Chapelle 2001; Warschauer 1999).

Schröder's analysis relates to textbooks, but can be extended to any language learning material, be this delivered via textbooks, or photocopies of relevant journal articles or downloaded material from the Internet; all represent common supplements used by language teachers.

Schröder's conclusion highlights two problems: First, a lot of very specific textbooks for business German would need to be available, catering for different areas of business. This would lead to questions of commercial viability and would

therefore most likely not materialise. On the other hand, any given textbook material is relatively rigid and cannot be easily adapted to different situations. The ERP, on the other hand, is based on flexibility. It allows students to develop their subject-specific language within context which is relevant to them, i.e., a marketing strategy is based on their understanding of the subject area, but expressed in L2. Student choice of specific content supports the learner relevance of the material. Furthermore, the inclusion into the task of specific target country socio-economic considerations and the activation of target country knowledge gained during the year abroad, leads to an extension of the learning situation beyond mere language learning and language practice. Schröder's postulated requirements for language learning for specific purposes are therefore fulfilled: Students work with material of their choice and relevance to them, practising subject-specific L2 while the task included an element of cultural understanding.

The change from textbook to Internet as source of information has an impact on the learning mode. The full integration of the Internet as a source of information in written, visual and aural form, as well as a medium for computer mediated communication in form of email, extended the experience of CALL to multimedia learning (Mayer 2005). The ERP represents a form of multimedia learning which makes use of the Internet as student-directed multimedia source for input of authentic material, as well as providing means to collaborate and communicate with others, therefore providing a platform for output. The output is based on or influenced by the mental representations the students built from the input.

Three kinds of outcome for multimedia learning have been named by Mayer (2005) which are represented below (Table 9). Besides the unintentional occurrence of students not learning at all and therefore not acquiring any knowledge, he names rote learning as leading to only fragmented knowledge which lacks deeper understanding. Rote learning within or without the context of multimedia is embedded in behaviourism. Even if retention as measured with, for example, positivistic tests may be high, the ability to transfer the knowledge is poor. Meaningful learning, on the other hand, can lead to integrated knowledge with good learner performance regarding retention and transfer. Mayer (2005:13) defines understanding as "the ability to construct a coherent mental representation from the presented material. It is reflected in the ability to use the presented material in novel situations [...]". In the context of testing learning outcomes, Mayer suggests that integrated knowledge "is assessed by transfer test. In a transfer test, learners must solve problems that were not explicitly given in the presented material – that is, they must apply what they have learned to a new situation. An example is an

essay question that asks learners to generate solutions to a problem, which requires going beyond the presented material" (Mayer 2005:13).

**Table 9 Multimedia + Test Performance**  
(Mayer 2005:13)

		test performance	
		retention	transfer
learning outcome	cognitive description	retention	transfer
no learning	no knowledge	poor	poor
rote learning	fragmented knowledge	good	poor
meaningful learning	integrated knowledge	good	good

Even though the research project under consideration was not conceived within a context of testing and assessments, the application of understanding and knowledge, and the transfer to another situation was part of the task. The aims and objectives of the module were given in the student module handbook and named explicitly to link business topics with broader socio-political issues. This objective was addressed in the task by specifying that the chosen product was to be introduced to the market of the new federal states. This created the opportunity to apply existing subject-specific and country-specific knowledge to new material which students researched via the Internet. They were able to transfer that knowledge and implement it in a new situation, that of the new federal states.

The results of the analysis presented above are evidence of students being able to make meaningful connections between firstly their knowledge of business and secondly broader socio-political issues of the target country, while also acquiring new content knowledge. Content knowledge was acquired in individual research as well as collaboration with others, within the dyad and among different groups. The task design succeeded in creating opportunities for negotiation and collaboration and thereby opportunities to practise L2 in general as well as in subject-specific contexts. This approach matched two of the aims and objectives of the module, i.e., to

improve and consolidate cognitive and linguistic skills: oral and aural skills, synthesising information and acting as linguistic intermediaries, comprehension and critical analysis of documents in the target language, written production

and to

increase sensitivity to linguistic register and consolidate knowledge of relevant vocabulary. (student module handbook)

#### 5.1.12 Evaluation criteria

As mentioned above, regarding content acquisition, this approach corresponds with Chapelle's principles of CALL evaluation which state that appropriate CALL has a positive impact and is authentic and focused on meaning. All three criteria shall be substantiated now.

In the context of CALL evaluation, Chapelle defines authenticity as reflected in "the degree of correspondence between an L2 learning task and tasks that the learner is likely to encounter outside the classroom" (Chapelle 2001:56). The business studies programme includes modules on market research which prepare students for future careers in marketing. Business students are therefore likely to encounter similar tasks to the one enacted in the ERP in their future professional life. As an additional positive feature, the ERP combines the subject-specific element with the practice of L2. In this respect the CALL task fulfills the criterion of authenticity (as well as in the respect of using authentic material for L2 input). A closely related criterion is that of positive impact. Tasks have a positive impact when they "help learners to gain pragmatic abilities that will serve in communications beyond the classroom" (Chapelle 2001:57). The ERP task helps in at least 3 ways towards this goal: Firstly, students practise subject-specific Internet researches for specified outcomes. Secondly, they practise summarising researched information from a particular task-inherent perspective. Thirdly, students practise subject-specific communication in L2 via email. The positive impact of this approach had been recognised by students and was highlighted in the debriefing<sup>49</sup>. The following comments shall serve as examples:

-I believe we have learned about our future work. An E-environment. In companies, we will surely work with emails, with, ehh, subsidiary company, or other parts of different countries. (student 10; 047)

-It is a good skill, to write an email, because it is difficult [to express] your opinion clearly. (student 10; 051)

-We have learned many different skills, actually research was beneficial, ehm, written communication and presentation at the end, was quite useful to experience, in German, all in German. (Student 8; 057)

-I have improved my communication skills in German. Ehm, I have ehm, learned about economic mistakes, what I can do better next time. (student 9; 021)

Students clearly recognise the connection between the language task and their main degree course, as well as the positive impact the practice facilitated by the task may have in their future professional work. The framework of the learning situation created by the ERP corresponds with Magnan's (2008:365) framework for re-conceiving foreign language education in which the need is expressed for "a

---

<sup>49</sup> The complete transcript of the debriefing session can be found in the appendix: in German in Appendix 2, and the translated version in English in Appendix 10.

learning environment in which the classroom is less rigidly defined so that students can reach into the target communities and contribute actively to meaningful exchanges there.” As was shown above, some of the students did indeed take the opportunity to reach beyond the classroom and contacted real life companies, for example, Berlin’s department store KaDeWe. Extending communication with peers in class to communication with real life companies in the target community is a reflection of the positive impact and authenticity of the task as was named in Chappelle’s evaluation criterion (above). Such occurrences of positive impact of the task were not only observed in the ERP under discussion, but also, for example, in another online role-play which was designed as part of a management course (Dracup 2008), and was not aiming at L2 learning.

Role-plays are excellent vehicles to engage students with the content of their discipline and to enact professional roles, thereby practising professional skills, for example, in diverse fields like law (Douglas and Johnson 2010) and business and management related studies (Dracup 2008; Hrastinski and Watson 2009).

Role-plays can combine meaningful L2 practice with subject-specific content effortlessly. They can facilitate solving tasks which ground “language learning in relevant and meaningful content that is aligned with the core curriculum of the [...] specialised academic standards of the respective discipline” (Kaufman 2004:309).

The third relevant evaluation criterion of meaning focus is also fulfilled since the ERP task continuously requires its participants “to use the target language to accomplish something such as making a decision on an issue, or exchanging information to accomplish a goal” (Chappelle 2001:56). As elaborated above, an in-built task design feature required students to collaborate, to exchange information and to negotiate details. The findings reflect that the exchange of information led to decisions being taken and thereby content strands being developed and new content learned.

#### 5.1.13 Summary of answer to the first research question

The core case study shows clear evidence that students acquired content knowledge through the participation in the ERP. The comparative method which compared self-posed questions at the beginning of the project with the answers given in the written report and presentations, can serve to highlight that content knowledge was gained. This method had been more successful in previous ERPs since the core case study experienced some initial difficulties to involve all participants constructively. Nevertheless, the comparison method showed that content was learned in all ERPs. Furthermore, the tracing of content development through all forms of data per ERP, showed that content was acquired through collaborative construction of knowledge. The process of collaboration led to a

fluidity in development of content knowledge which is represented in very different products and different marketing strategies developed during the years the ERP took place.

The findings in answers to the first RQ show that content was acquired within context meaningful to students, which gave opportunity to integrate existing knowledge and support elements of intercultural knowledge (Magnan 2008; Meyer 2005; Schröder 2004).

Applying Chapelle's principles for CALL evaluation (2001) relevant for content acquisition show the appropriateness of the ERP task.

While the answers to the first research question give evidence of content learning, the second research question shall be looked at in more detail in the next section which investigates whether evidence could be found which suggested that the ERP can contribute to language learning.

## 5.2 Findings: SLA

This section of the chapter will concentrate on the three situations or language related episodes (LRE) concerned with L2 output which could potentially represent a window into the language learning process (Swain 1995). In the first part of this section, data will be presented which exemplifies such occurrences of LREs and learner focus on form.

In the second part of this section, other incidents which represent focus on form are discussed, for example, those caused by L2 input (rather than output) and noticing a gap, those which are teacher-initiated, and those which are reflected in the use of tools as for instance spell checker.

Expressions of peer-tutoring born out of the spontaneously developing expert role are introduced.

This section concludes with a discussion of the findings and a positioning of the students' L2 output in a model of advanced learners who draw on previously encountered forms.

### 5.2.1 Conditions promoting SLA

Chapter 3 outlined how the research design applies output theory to the second research question in order to investigate whether evidence of second language acquisition can be found. Output theory (Swain 1993, 1995; Swain and Lapkin 1995) refers to three specific occurrences which are believed to represent a window into the language learning process. These are:

- The learner notices a gap between what they want to express and they can express.
- The learner forms hypothesis about L2 use and tests those. The produced utterance represents the tested hypothesis.
- The learner reflects on language by means of using the language (metalinguistic function or role).

Output theory is undergoing changes or rather a development in understanding. Swain extended and refined her approach to output theory and incorporated other perspectives relating to SLA theory, for example, sociocultural theory. Sociocultural theory (Lantolf 2000, 2006, 2008) is indebted to Vygotsky's thinking who

argued that just as humans do not act directly on the physical world but rely, instead, on tools and labor activity, which allows us to change the world, and with it, the circumstances under which we live in the world, we also use symbolic tools, or signs, to mediate and regulate our relationships with others and with ourselves and thus change the nature of these relationships. (Lantolf 2000:1)

Thus tools can act as mediators. One of the mediating tools is language. Following Vygotsky's thinking, sociocultural theory distinguishes between thinking as an internal process and speech which can externalise thought, while accepting "that speech, while not identical with thinking, is implicated in the thought process. In other words, thinking and speaking form a dialectical unity [...]" (Lantolf 2008:8), in which

social communication comes to serve as a tool for mediating thinking. This is in sharp contrast to the traditional view in mainstream linguistics and psychology, in which language and thought are completely independent phenomena and where language serves only to transmit thought but is in no way implicated in its formation [...]. (Lantolf 2006:77)

Against the background of discussions about the interrelationship between language and thinking in general as well as in the context of SLA, Swain openly acknowledged that she was looking for a different label from output theory (Swain 2000: 99) and referred to van Lier and Kramsch who she understood would

not approve of the continued use of the term 'output', claiming that it limits our understanding of second language learning to an *information-processing perspective* rather than permitting us to broaden the perspective to one in which all *social activity* forms a part of the learning environment. (Swain, 2000:99; emphasis in italic added)

The perspective of language learning as primarily focusing on information processing can be made more explicit: Kramsch drew a distinction between the notions of learner-as-computer and learner-as-apprentice. In the first instance the "language learner is seen as an information processor that receives input from caretakers, teachers and peers, processes this input into intake, and, ultimately, produces output of a measurable kind" (Kramsch 2004:1). In the second instance, the learner-as-apprentice model, language "is not seen as input, but as a tool for getting other things done. The focus is not on the way symbolic systems are acquired, and grammatical and lexical paradigms are used to encode reality, but on the way language practices are organised within members of a community of language users" (Kramsch 2004:2). This latter understanding of language learning requires different forms of research into the learning process and does not lend itself to measurement of output as a means to establish language learning.

In the light of the discussion of language being embedded in social interaction, Swain began to broaden her understanding of output theory and sought to incorporate the idea of language learning being influenced by social interaction. She defined her understanding of output as "[s]tudents' meaningful production of language" (Swain 2000:99) and stated that "the importance of output to learning could be that output pushes learners to process language more deeply – with more mental effort – than does input" (ibid). Swain believed in the power of output to facilitate the learner's noticing of the gap in L2 proficiency or the "hole in the

interlanguage" (Swain 2000:100), as she reported previously (Swain 1995) and hinted already in 1993: "it may be that producing language forces learners to recognize what they do not know or know only partially" (Swain 1993:159). In response to their discoveries of gaps in their L2 proficiency, learners may formulate and test hypotheses which can be seen as reflections of the language learning process (Swain 2000:100), of illustrations of accomplishment of "construction of linguistic knowledge" (Swain 2000:102), having engaged in "knowledge building" (ibid). Even if the indicators of language learning as named in earlier versions of the output theory did not change fundamentally, Swain attempted to extend the explanatory framework. She seemed to agree with van Lier and Kramsch that seeing the three indicators of language learning in output theory on their own, namely noticing a gap in proficiency, hypothesis-testing, and the reflective metalinguistic function (Swain 1995), is narrowing the approach to language learning to an activity of information-processing. Swain's research took note of previous research (e.g., Doughty and Pica 1986; Long 1981) which highlighted the important role of interaction and negotiation in the process of language learning, but this was not a fully integrated element in the output model.

As Swain expanded output theory beyond the three functions named above, she acknowledged that language learning consists of more than mere information-processing. While fulfilling the language learning task and being in discussion with other learners, the negotiation itself has an impact on the output, on the utterances the learners produce. The student talk while engaged in the task may lead to the actual solving of the problem and the building of knowledge (Swain 2000), with the latter referring in this incident to linguistic knowledge. The examples given by Swain belong to a lower level of proficiency and deal with, for example, daily routines, for instance getting up and preparing to leave the house. Such activities are known to all students (often prompted by picture stories as in Swain 2001) and do not need mediation in order to build knowledge on the content level.

The combination of the student language output in response to solving the task added to the discussion between students about the language to be used for the response, can provide insights into the learners' interlanguage development. Broadening her understanding of output theory, Swain (2000) recognised the importance of the discussion between students for the building of knowledge which could well occur in collaboration with the partner, thereby moving closer to a sociocultural perspective towards the L2 learning process. Swain acknowledged the sociocultural aspect of the student dialogues, their "linguistic problem-solving through social interaction" which involves language as mediator and semiotic tool (Swain 2000:104). The student talk about the phenomenon is instrumental for the learning process and goes beyond the previous simple information-processing model of early output theory. In an attempt to capture the change in her approach

and the inclusion of the sociocultural aspect of language learning to output theory, Swain abandoned the term output and replaced it with verbalization, utterance and collaborative dialogue (Swain 2000), hereby emphasising the importance of speech in the learning process. She continued searching for an appropriate and encompassing term for the phenomenon and settled later (Swain 2006) on *linguaging*. That term purposely conjures movement and process rather than a static phenomenon. Linguaging means “an action – a dynamic, never-ending process of using language to make meaning” (Swain 2006:96) and to “mediate cognition” (Swain 2006:97). In other words, linguaging “serves as a vehicle through which thinking is articulated and transformed into an artifactual form” (ibid). This later statement encompasses the thought which Swain had developed previously when she referred to collaborative dialogue producing utterances which represent “cognitive activity and the product of it” (Swain 2000:102). Collaborative dialogues can solve problems and then become “knowledge building dialogues” (Swain 2000:113), whereby the knowledge being built again refers to linguistic knowledge and not content knowledge.

The following reports on occurrences of focus on form in the ERP or language-related episodes (Swain 2000; Swain and Lapkin 2001) which, in Swain’s sense can be seen as possible windows into language learning in action. For the purpose of this thesis’ research, I was looking for ways to discover whether the ERP could support language learning and if so, whether evidence of L2 learning could be demonstrated. For this purpose, indicators of possible learning are needed. Using the indicators of output theory can suffice to point towards evidence of learning. If such evidence is found, a claim is not made that L2 learning consists of, for example, information-processing only or primarily. For the purpose of answering research question 2, no claim is made regarding the cause and effect of L2 learning, rather evidence of the possibility for L2 learning, enhanced by the ERP task, is sought.

The task design was influenced by output theory and the interaction hypothesis (Long 1996) which highlights the importance of interaction for the learning process. Negotiation of meaning and social interaction were therefore specific elements built into the task. Nevertheless, the question of how interaction may contribute to SLA was not a central concern of the research.

Below, language-related elements or focus on form as evidenced in the ERP transcripts shall be introduced.

### 5.2.2 Findings relating to research question 2

Does the role-play facilitate language learning? If so, how can it be demonstrated?

For the purpose of this research design, output theory was chosen as a 'diagnostic' method for detection of windows into SLA or possible occurrences of L2 learning. When analysing the data, I was looking for language-related episodes (Swain 2001) or evidence of student focus on form (Long 1997). For the purpose of this thesis, both terms are used interchangeably and include focus on lexical items as well as structural or grammatical phenomena. The research question focuses on the demonstrable facilitators for language learning, but generally does not try to 'proof' language learning has taken place by, for example, administering pre- and post treatment tests.

First, I will report some findings from previous ERPs, and then I shall concentrate on findings relating to the core case study. Several findings relating to previous ERPs were published, therefore the next section dealing with a longitudinal perspective is kept brief.

### 5.2.3 Longitudinal perspective: Language-related episodes

Analysis of previous electronic role-plays could show how learner focus on form can appear spontaneously and naturally during the process of text production, an observation which could be confirmed later through the analysis of the data provided by the core case study. Students could solve grammatical problems successfully through collaboration with their partners (Leahy 2004a and b) or through collaboration with other groups (Leahy 2004b), for example, adapting an incoming email. For instance, within one dyad, students had discussed possible correct usage of a verb but had not felt strongly about any particular variation of the form. They were unsure about the use of "to decide", whether it was used as reflexive verb (*sich entscheiden*) or non-reflexive (*entscheiden*) and how the past participle was formed. Even though they were able to produce the correct reflexive form (*wir haben uns entschieden*), the fact that they were not sure about it initially led them to omit it from their text. However, the problem continued to be present in their minds, and when the verb "entscheiden" was used in an incoming email from another group, they immediately recognised it and adopted the same use for their purposes. They had been asked

Können Sie uns mitteilen, was genau Sie schon *entschieden haben*? [Can you tell us what exactly you *have* already *decided*? ERP4; Student 10, 10:54; emphasis in italic added]

And replied decisively:

Wir *haben entschieden* [...]. [We have decided [...]. Leahy 2004b:134; emphasis in italic added]

Similar occurrences of partner collaboration caused by learners noticing a gap between what they want to express and can express (or rather feel comfortable to

express), could be observed in another project (ERP5): While formulating their research questions, students of one group discussed the form of the verb “unterstützen”. Student 8 was unsure whether it was a separable verb and whether it should be spelled with 'Umlaut' (Dialogue 5.2.1).

<b>Dialogue 5.2.1:</b> student self-directed focus on form: separable Verb? ERP 5, group 4, week 1			
Turn	student	dialogue (transcript)	email message (printed verbatim)
1	S 8	[...] zu – zu unterstützen oder um zu stützen? [ .... to support?]	Hat Ost-Deutschland die *notwendig Infrastruktur, *ein Handy-Markt <u>zu unterstützetzen</u> ? Brauchen sie mehr Investitionen? (emphasis added) [Does East-Germany have the necessary infrastructure <u>to support</u> a market for mobile phones? Do they need more investment?]
2	S 7	zu unterstützen. Es ist nicht trennbar. Ich glaube. [to support. It isn't separable. I believe.]	
3	S 8	Gibt es u – Umlaut - in der Mitte? Unterstützen? (emphasis on ü) [Is there an Umlaut?]	
4	S7	Ja. Ich glaube. [Yes. I believe so.]	

[emphasis added]

Student 8 asked the partner which verb form should be used in the sentence ‘Does East-Germany have the necessary infrastructure *to support* a market for mobile phones?’ (turn 1). The student was also unsure whether the verb needed an Umlaut (turn 3). The partner replied that she believed that an Umlaut was required (turn 4). The verb was then used accurately in the email message they were creating.

In their dyads, students also helped each other with vocabulary. For example, dialogue 5.2.2 illustrates how student 4 was looking for the appropriate translation for 'characteristics' while drafting a question with her partner. Student 3 supplied the correct form, which was used in a subsequent email message.

It can be expected that student self-directed focus on form occurred when the student came to a point of uncertainty, either trying to remember a form learned in the past and (semi-)forgotten, or a form not quite mastered yet. Similar examples to those evidenced in previous ERPs could also be found in the core case study.

<b>Dialogue 5.2.2:</b> vocabulary query ERP5, group 2, week 1			
turn	student	dialogue (transcript)	email message (printed verbatim)
1	S4	wie - wie sagt man characteristics? Von der deutsche ... [How do you say characteristics? Of the German ...]	Was sind die <u>Eigenschaften</u> ein Deutsches Handybenutzer [...]? [What are the characteristics of a German mobile phone user?]
2	S3	Eigenschaften. [characteristics]	
3	S4	Handybenutzer. [mobile phone users]	
4	S4	Was sind die Eigenschaften? [What are the characteristics?]	

[emphasis added]

#### 5.2.4 Language-related episodes in the core case study

In the following I shall use the three occurrences of L2 learning processes which were identified by output theory as a framework for presenting findings. If appropriate, translations into English are provided. The translations attempt to reflect the tone of the original, which may include a distinct resonance of L2 utterances.

#### 5.2.5 (1) The learner notices a gap

##### Example: L2 input and noticing a gap

This situation is closely linked to the second example of a window into the cognitive processes of L2 learning as named by Swain. Once a gap in the interlanguage has been noticed by the learner, they will try to overcome the gap, for example, by forming hypotheses or by other means which solve the problem of the gap between what they want to express and what they can express. The following examples serve as an illustration for learners' noticing a gap in their interlanguage.

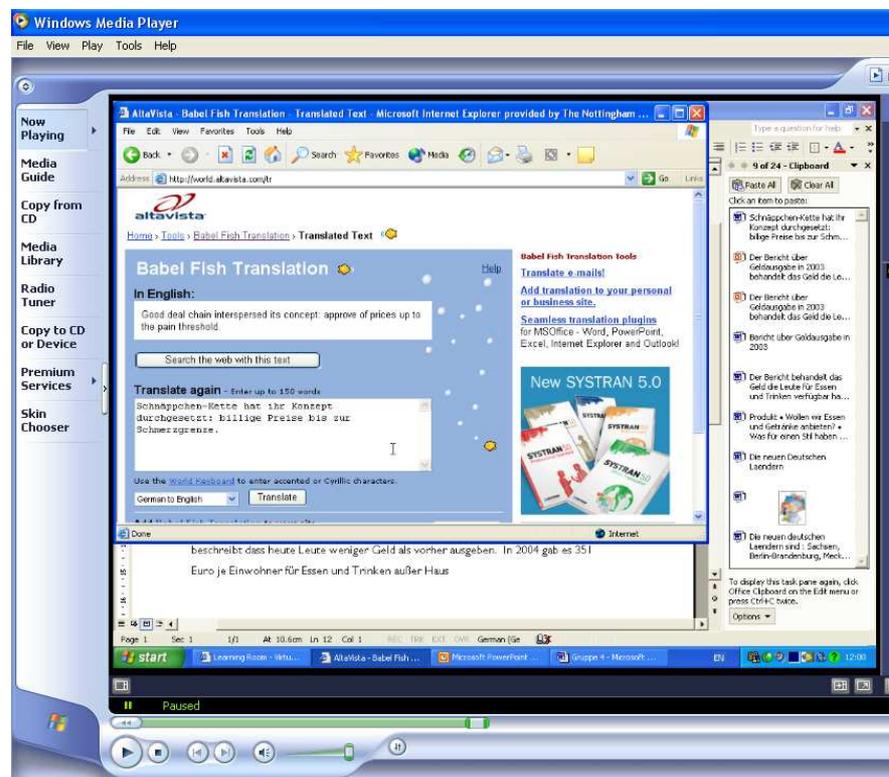
The first example represents focus on form which is not borne out of negotiation, but the engagement with input in written text form. Student 8 was working on her presentation and used material her group had written during the previous week. With her partner absent, on her own, she tried to make sense of a phrase in a summary from the previous week and considered the best way in which to summarise the information. She appeared unsure about the phrases' meaning and turned to the online translator „babelfish“. This tool was not linked to the module within the VLE, the student had to seek it out: At first, she opened google.co.uk, then „babelfish“. She pasted the German phrase into the

„babelfish“ site and set the language to ‚translation into English‘ (screenshot we 3, student 8; 33:10). The following translation was generated:

Translation 1	
German	computer translation into English
„Schnäppchenkette hat ihr Konzept durchgesetzt: billige Preise bis zur Schmerzgrenze“	"Good deal chain interspersed its concept: approve of prices up to the pain threshold."

The English translation did not make much sense.

Screenshot we 3, student 8; 33:10



Student 8 then closed „babelfish“, only to open it again and to repeat the same exercise. Since the translated text into English was still incomprehensible, she copied the entire German sentence (plus the following ones) and pasted the text verbatim into her powerpoint presentation. She edited the pasted text (left-hand column below) as shown in the right-hand column.

---

Text production „Schnäppchenkette“

---

Text written by student 7 during week 2 (Gr 4 doc)

Student 8 edited student 7's text for her powerpoint presentation during week 3

---

„Schnäppchen-Kette hat ihr Konzept durchgesetzt: billige Preise bis zur Schmerzgrenze. So zieht sie neue Gäste \*ein. Zum Beispiel kostet ein Bier vom Fass (0,3L) in Bad-Gnadersheim; 1,05€ (zum Vergleich: 1,80€ bei einem Gasthof der Nähe).“

„In Schnäppchen-Kette, billige Preise zieht neue Gäste \*ein. Zum Beispiel kostet ein Bier vom Fass (0,3L) in Bad-Gnadersheim; 1,05€ (zum Vergleich: 1,80€ bei einem Gasthof der Nähe).“ #1

---

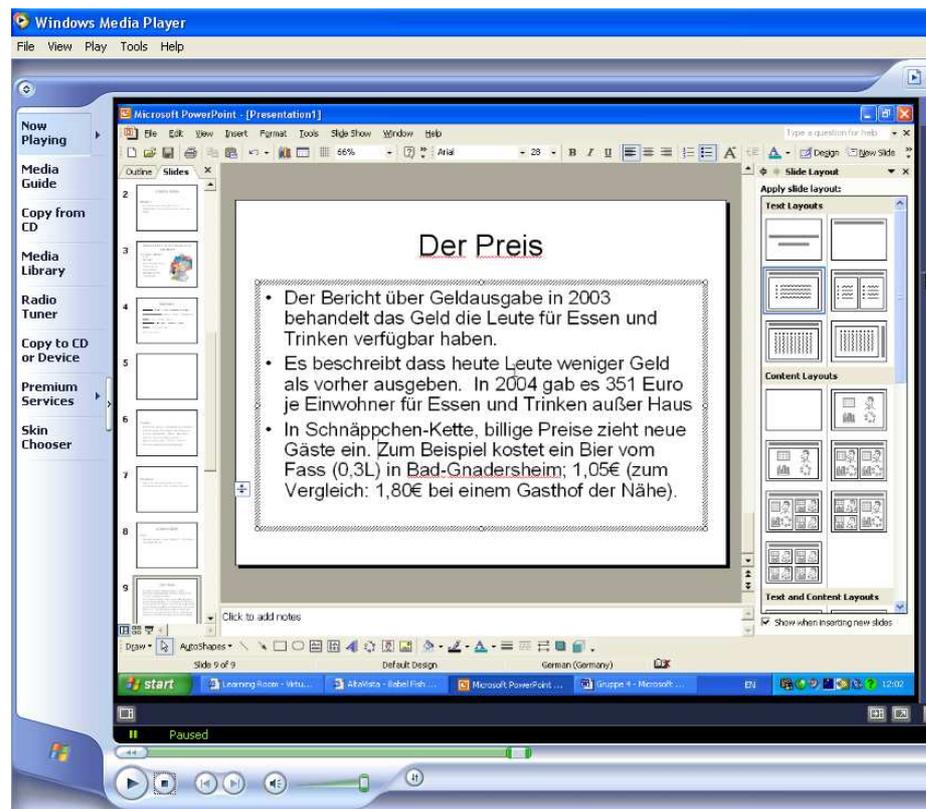
*#1 The pub chain's cheaper prices attract new customers. For example, in Bad-Gnadersheim a draught beer costs Euro 1.05 in comparison to Euro 1.80 at another pub in the neighbourhood.*

---

The edited text is captured in the screen shot below (we 3, student 8; 35:15).

---

Screenshot we 3, student 8; 35:15



---

In this instance, student 8 opted for the solution to omit the text she appeared not to understand fully. The translation with an online translator did not help her comprehending the original, but she did understand the gist of the original's main

argument and transferred that to her presentation. The non-essential information was then deleted.

Two things are illustrated in this example: The student had noticed a vocabulary-based gap in her interlanguage while dealing with L2 input. Her first attempt to overcome the gap was guided by her effort to find the exact meaning of the term "Schnäppchen" and the phrase "bis zur Schmerzgrenze". She worked on her own and could not ask a partner for help. Instead, she turned to an online translation tool which did not provide her with a convincing translation. While she kept the term Schnäppchen unchanged she decided to delete the phrase in question and thereby overcame the problem of the gap by omitting it. Her working hypotheses about the meaning of Schnäppchen in the text she produced became clearer a little later when she asked the teacher for help. This example is elaborated below (dialogue 5.2.5). The second point illustrated here is the importance of user-evaluation of the answers provided by computer-based tools, in this case the online translation tool. The episode represents an unsuccessful translation attempt, but instead of making the provided translation 'fit' the need (as can occasionally be observed especially in learners of low level proficiency), the advanced learner in this incident was able to evaluate the provided translation and dismiss it as unusable. This was the only observed attempt to use an online translation tool and reflects a positive result in the sense that the student evaluated the provided translation for its usability. Using tools available in order to overcome L2 comprehension difficulties is a positive learner strategy. Making an informed decision regarding the solutions the machine offers, reflects learner maturity and a constructive learner strategy. The learner does use the translation tool critically and is aware of „the kinds of errors these systems [can] make" (Niño 2009:28).

Technology enabled learners to access different tools to overcome any gaps in their interlanguage much quicker and easier than traditional methods do. The use of an online translation tool, online dictionary, spell checker, or the software support tool of synonyms and antonyms were literally at their fingertips while opening a dictionary in book form and checking a term would have required more effort and would have taken longer. Even though the information provided in book-based dictionaries is usually more comprehensive than in most electronic dictionaries which can be found online, the speed and ease of use of electronic dictionaries led in ERP6 to more frequent use of the latter. By the time the sixth ERP took place students were more familiar with these tools (electronic dictionary and spell checker) than in previous ERPs.

The following section introduces some other solutions students chose in order to overcome gaps in their interlanguage.

### 5.2.6 (2) The learner forms hypothesis about L2 use

The following brief exchange between students 7 and 8 is an example of a learner being unsure about the superlative form of the adjective. She asked her partner for help, while making suggestions of some forms which were incorrect. Student 7 replied with the correct form and then assisted with the spelling.

---

**Dialogue 5.2.3** -Student 8 asks student 7 about the formation of the superlative.

Student 7, we 2, 1:30:18 – 1:31:18

Student 8	Wie sagen wir das? Die *größigsten? *größigster? [How do we say this? (she tests out variations of) the biggest]
Student 7	grö – größten, größten
Student 8	- größten

Student 7 helps with spelling of: größten

---

#### 5.2.6.1 Looking for appropriate vocabulary and hypothesis testing

The following example of hypothesis testing relates to the students' L1, rather than L2. The pair was testing a spelling hypothesis for an English term they needed in German translation for their text production. They could not think of the correct German adjective and hoped to be able to translate it from English to German, using the online dictionary (dialogue 5.2.4). Initially, they could not spell the English word correctly (advantagous – advantagious) and therefore could not solve the translation problem. The dictionary offered the correctly spelled option: advantageous. Surprised, student 2 commented "There you are it is -e", referring to the "e" in advantageous. They were then provided with the German translations and decided to use the first entry offered: "vorteilhaft". This is not the most appropriate translation, a native speaker would have probably favoured "weniger günstige geographische Lage". Student 1 and 2 were in the process of drafting the note page of their powerpoint presentation and the finalised sentence read:

Wir haben andere \*Statt nicht gewählt auf Grund von der weniger vorteilhaft geographische Lage. [We did not choose other cities because of the less advantageous / favourable geographical position.]

This sentence still contained errors in case endings and the incorrect spelling of Stadt or rather the required plural form "Städte". However, the chosen word order was acceptable, even though not native-speaker-like.

Dialogue 5.2.4 : Week 3, Student 1, 1:09:56			
turn	student	talk	screen [verbatim]
1	S1	Wir haben andere Städte - nicht	Wir haben andere *Statt nicht *gewählt – (spellchecker – inserts Umlaut)
2	S2	nicht gewählt Auf Grund von	auf Grund von
3	S1	auf	
(1:09:56)	S2	auf – (Shouts to tutor to confirm structure) Christine – auf Grund von	
5	T	richtig	
6	S1	auf Grund von der *geographische Lage	
(1:10:17)	S2	Ja – schlechte geographische Lage, weil ist wenige, wenig advantageous. Let's try that, it is not bad. is it ious?	schlechte geographische (deletes:) schlecht (inserts:) weniger (corrects:) weniger (goes to <b>dictionary</b> ; looks up:) advantageous
8	S1	no, I don't think so – That's wrong	
9	S2	Isn't that strange? (spelling suggestion in dictionary:) There you are it is -e	advantageous (inserts:) weniger vorteilhaft geographische (deletes:) –r Lage

This example illustrates the process of hypothesis testing in output, but refers here to L1. It demonstrates typical student behaviour in the use of online dictionaries: trial and error attempts in the spelling of the source word and use of the first translated option in the target language, rather than considering different translation options. The second noteworthy point in this dialogue shows how student 2 asked for tutor assurance. He sought confirmation for the structure “auf Grund von” by shouting it to the tutor across the room. Once the tutor confirmed it to be correct, it was immediately inserted into the text which was being drafted.

The following example represents hypothesis testing on the semantic level, based on a diminutive form. As shown in relation to translation 1, student 8 had tried to translate the word ‘Schnäppchenkette’ with the help of an online translator, but did not receive a convincing or satisfying translation. Student 8 retained the word in her presentation, but sought reassurance from her tutor whether she interpreted the meaning correctly. In the following dialogue (5.2.5), she asked her tutor whether Schnäppchen can also mean a small drink. The teacher explained that the meaning of Schnäppchen refers to a bargain, while Schnäpschen could refer to a small glass of spirit, if used as a diminutive of Schnaps.

<b>Dialogue 5.2.5: Schnäppchen vs Schnäpschen</b>			
Week 3, student 8, 42:20			
turn	student	talk	Engl. translation
1	S8	Ist Schnäppchen wie in kleines Schnäpschen, kleines Getränk?	Is "Schnäppchen" the same as "Schnäpschen", a small drink?
2	T	Oh ja, das geht auch. Oder Schnäppchen, man spricht von 'ein Schnäppchen machen' ist to get something cheaply, a bargain. Und was du meinst ist ein Schnäpschen.	Yes, that is possible. "Schnäppchen" refers to 'ein Schnäppchen machen' which means to get something cheaply, a bargain. What you mean is a "Schnäpschen" (diminutive for Schnaps = spirit, hard liquor).
3	S8	oh nein, nein, ich meine	oh no, no, I mean
4	T	von Schnaps	The origin is Schnaps
5	S8	Nein, ich dachte es war Schnäpschen, aber es ist Schnäppchen weil diese Kette, ich sage später in *die Preisstück - Schnäppchen-Ketten haben billige Preise.	No, I thought it was a "Schnäpschen" but it is a "Schnäppchen" because this chain, I will say later in the price-piece, the "Schnäppchen-chain" has low prices.

Student 8 sought confirmation from her tutor that her deduction regarding the meaning of "Schnäppchen" was correct. She had previously thought it could be related to a drink (turn 1, first line turn 5). The source text referred to beer prices for 0.3l glasses, from a British perspective a small beer since beer is usually sold in pint-size glasses (approx. 0.56 litre) in British pubs. Student 8 may have formed the hypothesis that the pub name reflected the size of drinks on sale, hence her question whether Schnäppchen referred to small drinks. She may have linked the size of the drink with the name of the chain. She deducted the meaning of the pub name, Schnäppchen, a diminutive (identifiable by the ending -chen) by using the context. However, she then believed that it referred to the pub chain and its prices (turn 5, lines 2-3), more than the actual size of drinks.

Another example of hypothesis testing referring to lexis is illustrated below. Dialogue 5.2.6 reflects the discussion students 1 and 2 had while composing text.

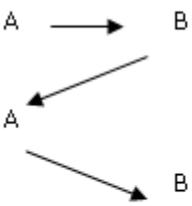
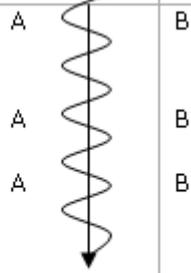
<b>Dialogue 5.2.6:</b> instead of this - statt dieser; Week 3, student 1; ~52:42			
turn	student	talk	screen
1	S1	Ja? – Ja ich meine das ist [Yes? – I think that is]	
2	S2	genug. [enough.]	Gegen diese Idee haben wir uns entschlossen, weil es schon in Deutschland die so genannten *Trinkhalle gibt.
3 (52:42)	S1	oder: Statt dieser - instead of this. [or: statt dieser – instead of this.]	Statt
4	S2	Ja? [yes?]	
5	S1	wie das? [like that?]	(hesitant about the spelling)
6	S2	Statt – instead of this, you see. Statt is instead of this. -You spelled it correctly	(she deletes it)
7	S1	ahh.	
8	S2	Statt means instead of.	Statt
9	S1	Jaja [yesyes]	
10	S2	OK – statt dieses – dies! I think it is dies, this. – statt dies	(she corrects:) dieses (to) dies
11	S1	Dies [this]	
12	S2	haben wir auch etwas anders, etwas anders *ausgewickelt – [we have *unwrapped something else]	
13	S1	aber statt dies - Entscheidung? [but instead of – decision?]	
14	S2	No, I think: statt dies haben wir [No, I think: instead of we have]	
15	S1	Ja? [Yes?]	
16 (53:45)	S2	etwas anders – <b>ausgewickelt developed.</b> [Something else – unwrapped developed.]	haben wir etwas anders ausgewickelt
17	S1	haben wir etwas ausgewickelt. [we have unwrapped something.]	
18	S2	Is that OK?	
19	S1	Ja. [yes.]	

Dialogue 5.2.6 took place when the two students were preparing their presentation and, together, were composing the note pages for the powerpoint presentation. They were in the process of phrasing the next sentence: “\*Statt dies, haben wir \*die Konzept eine Kneipe Art wie \*die \*Irische Modell \*ausgewickelt.” [Instead, we developed a concept of a type of pub like the Irish model.<sup>50</sup>] The student intended to use the verb ‘entwickeln’ (to develop; turn 16) but translated it wrongly to ‘auswickeln’.

<sup>50</sup> As mentioned before, the translations purposely keep a distinct sense of L2 sentence composition and are in that sense close to the L2 version produced by the student.

Several things are of interest in this short dialogue. It was part of the collaborative formulation of sentences for the note pages in order to help the presentation of the group's results. First, the case above shall be looked at in more detail: Student 1 wanted to express that they had decided against the concept of the "Wetherspoon" chain, since there were already competitors on the market in form of "Trinkhallen" and they would rather follow the successful model of the Irish pubs. She was aware that "statt" [instead of] could be the correct word, it had been suggested by student 2 a little earlier, but she was unsure about the spelling. She asked her partner for his opinion (turn 3 and 5), referring to the word she had already typed: "statt". He again gave the translation and confirmed the correct spelling (turn 6 and 8), however he suggested an unconventional and incorrect use: "instead of" means "stattdessen" or "an Stelle von", or just "statt" or "anstatt", but does not mean "statt dies". They then continued with the statement that they had developed a new approach. In turn 16 student 2 claimed that the verb 'to develop' translated as "auswickeln" (to unwrap). He convinced his partner to use the incorrect term instead of "entwickeln", the verb he was looking for. This represents an example of the problem unchallenged "experts" can pose. (The concept of developing expert roles will be explored in response to RQ3.) Another interesting characteristic of this short dialogue (5.2.6) is reflected in turns 1 and 2 which exemplify a common feature of this group's communication; student 1 and 2 often interrupted each other and completed a sentence for the other in anticipation of what they tried to express. This phenomenon of students completing each others sentences was already observed in previous ERPs. Previous transcripts showed that the communicated content was comprehensible when the text was seen as a continuous piece, irrespective of the individual speakers' contributions (Leahy 2004a).

Analysis of the oral communication transcripts showed that some students' communication was not characterised by the expected turn-taking in semantic units (Figure 8, left column), but that partners finished sentences for one another (Figure 8, right column). Here, the produced text showed a flow of information, which appeared less dependent on the individual speaker, thereby suggesting a high degree of mutual involvement in the task since the speakers could anticipate each other's comments and finish them for one another.

<p>expected communication pattern: turn-taking in semantic units between students A and B</p>	<p>observed communication pattern: produced text only creates semantic units if read continuously irrespective of the individual speakers' contributions</p>	
		

**Figure 8 Communication Pattern**

Students anticipating and completing each other's sentences (right hand column)

This phenomenon is different from triadic interaction which will be introduced at the beginning of the next section, in response to the third research question which looks in more detail at student behaviour in the computer room and emerging interactional patterns.

Both triadic communication and the communication pattern illustrated in Figure 8 share the quality that L2 output is not comprehensible to a third person, if looked at from the perspective of one speaker at the time. Figure 8 shows that the contributions of two speakers complement one another and have the potential to make sense for the reader or listener of such utterances as long as the output was seen continuously, rather than per person.

Returning to the question of SLA potential embedded in the ERP, preceding the dialogue (5.2.6) above, students 1 and 2 had written the first two sentences of the 3<sup>rd</sup> slide of presentation notes. In these sentences, they were using incorrect vocabulary which they had discussed before.

Students 1 and 2 were engaged in an action which Swain (2006) called languaging where learners are engaged in L2 as part of a process of making meaning. In other words, their languaging reflects the "vehicle through which thinking is articulated and transformed into an artifactual form" (Swain 2006:97). Students think and talk about ways of expressing what they want to say. Doing so, they create "a

visible or audible product with which one can language further" (ibid). Here, in this context, the verb "angedacht" was an invention by student 2. The verb "andenken" is not commonly and frequently used, and according to Wahrig's monolingual dictionary it is a colloquial expression, which carries the meaning "to start to think about something". The dialogue makes clear, student 2 had a slightly different meaning in mind, i.e. "an etwas denken" or "über etwas nachdenken" – to think about something. Correctly, they use the present perfect tense and would therefore need the past participle "nachgedacht". They talked about the verb and possible correct conjugated forms, an example of the learners reflecting on language, in this case through the medium of L1 and L2.

---

### **Presentation note page**

Week 3 – 3<sup>rd</sup> slide of presentation note page

<p>"Zuerst haben wir über eine *kette wie *Weatherspoons *angedacht. Gegen diese Idee haben wir uns entschlossen, weil es schon in Deutschland die so *genannten Trinkhalle gibt."</p>	<p>Engl. translation: At first, we thought about a chain like Wetherspoons. We decided against this idea, because there is already a so called drinking hall in Germany.</p>
--	--

While student 1 typed the sentence, student 2 firstly considered the past participle form of 'to think': 'gedacht', but than expanded to 'to think about'. He claimed that the verb 'andenken' would be the translation for 'to think about', but the dialogue does not give the impression that he knew the colloquial expression. Instead, it appears that his use of the verb "andenken" may be caused by confusion with the expression 'an etwas denken'. Student 2 contracted this to andenken, and than applied the correct tense for German usage, i.e. the past tense is expressed in present perfect, hence the use of the past participle: 'haben ... angedacht' (Dialogue 5.2.7).

<b>Dialogue 5.2.7:</b> Week 3, student 1; 46:34: angedacht		
turn	student	talk
1	S2	haben wir – eh, eh, eh, denkt, gedacht. Zuerst haben wir gedacht [we have - eh, eh, eh, think, thought. First, we have thought]
2	S1	gedacht [thought = here: past participle]
3	S2	Ja. – I think 'thought about' is 'angedacht'. Andenken is to think about, I think. No it is angedacht. I think that is OK: thought about
4	S1	Ja? [Yes?]
5	S2	Ja. Angedacht über eine Kette – eh – wie Wetherspoons - Zuerst haben wir über eine Kette wie Wetherspoons angedacht. [Yes. Thought about a chain – eh – like Wetherspoons – At first we have thought about a chain like Wetherspoons.]

These examples highlight the problem of expert roles which can develop spontaneously in collaborative tasks like the ERP. Unquestioned, accepted authority of “experts” can lead to these “experts” teaching their peers language. Peer-tutoring can have a positive effect on the group, the task progresses, problems can be overcome. “L2 experts” usually gained their status through their knowledge and correct application of the same in the process of solving the task. However, the authority gained regarding matters of L2 may lead to other students not questioning the “expert’s” suggestions any longer and can lead to peer-tutoring of incorrect forms, as shown above. The phenomenon of expert roles is further discussed in response to research question 3.

Next, the third situation named by Swain which may represent a window into the student’s language learning process shall be looked at: the metalinguistic role.

### 5.2.7 (3) The learner reflects on language (metalinguistic function)

The main language-related events or focus on form in the general sense were rooted in lexis-based queries. Table 10 illustrates another example of student reflection on the appropriate and correct word. Student 7 and 8 were writing one of their first emails together. As already highlighted above (Figure 8) in the example of another group, here the students also completed each other’s sentences. Student 8 (turn 3) started the sentence with “We are group 4” and student 7 (turn 4) completed it “and research the market conditions”. Student 7 used the verb ‘to research’, but student 8 typed the noun for ‘research’ (“Forschung”, turn 5 and as displayed on the computer screen, right hand column in the Table 10). In turn 6 student 7 suggested that a verb for research exists in German: The comment resulted in student 8 changing that part of the email from “Forschung” to \*Forschen”, still spelled with the capital letter. In turn 8, student 7 explicitly pointed out the forms for the verb and noun. Student 7 was very confident in

German and showed a high level of grammatical knowledge and command of the metalanguage with which to explain grammatical phenomena. On one occasion student 7 explained several grammar points to her partner and even offered to explain further outside class before the next assessment (week 4, student 7, 55:11). Within her dyad, events like these underscored student 7's expert role for L2. However, even students with "expert" status were occasionally corrected by their partners as shown in Table 10 (turns 11-14), which reflects good collaboration. The dialogue continued with both students developing their email text collaboratively. Student 8 formulated the next question (turn 11) addressed to the other group: asking which information they required. She firstly asked the question correctly, using the German plural form "Informationen" for the English noun 'information', but typed the singular and in lower key as would be done in English, due to the English spelling convention and because 'information' belongs to the group of uncountable nouns. Student 7 completed her sentence with the conjugated verb in 2<sup>nd</sup> person plural "braucht ihr", but student 8 corrected her to use the polite form to address and therefore use the conjugated form "brauchen Sie". Student 7 immediately acknowledged the polite form as appropriate form (turn 14).

This dialogue fragment represents a good example for collaboration functioning well where both students are focused on the task at hand and their collaboration leads to a better outcome than would be achieved if only one of them had composed the text within the same length of time. Here, the dyad's 'non-expert' for L2 was comfortable and confident to improve the continuation of the sentence from the suggestion by her partner. In turn 23, student 8 referred to the noun 'information' again, but this time with a marker for singular use. She applied the incorrect gender to the indefinite article and used "ein" instead of "eine". In turn 15, student 8 sought reassurance in her understanding of lexis. She asked her partner to confirm the meaning of "Marktbedingungen", suggesting herself the correct translation in the same sentence: conditions of the market. When working with student 7, student 8 tended to look for reassurance from her partner, even though in many of the cases her suggestions already represented accurate L2 usage.

**Table 10 Peer Tutoring**

collaboration in text production (Week 1, student 8, ~31:53)			
turn	student	Talk	screen
1	S8	Ah ja. – Was sollen wir machen [What shall we do]	cc to CL; subject line: Was sollen wir machen [What shall we do]
2	S7	Nichts – wir wollen nichts machen (laughs) [Nothing, we don't want to do anything. (laughs)]	wir sind Gruppe 4. wir gucken – [we are group 4. we look -]
3	S8	Wir sind die Gruppe [We are group ]	(deletes wir gucken –) und Forschung ueber [and research (noun is used) about]
4	S7	und forschen über die Marktbedingungen [and research the market conditions]	
5	S8	und Forschung [and research]	
6	S7	ich glaube es gibt ein Verb. [I believe there is a verb] Ja. – über die Marktbedingungen [yes – about market conditions]	changes the noun research "Forschung" to the verb to research "Forschen", but spells it incorrectly with a capital letter
7	S8	Ist das ein Wort? [in reference to market conditions: Is it one word?]	writes: fin...
8	S7	Ja. [yes.] Forschen ist schon ein Verb. Die Forschung und das Verb ist forschen. [research is already a verb. The research and the verb is to research.]	
9	S8	Ahhh	
10	S7	Ehmmm	
11 (31:53)	S8	Was für Informationen brauchen [Which information need ]	Was fuer information braucht – [What kind of information do you need] (deletes:) t
12	S7	braucht ihr [do you need]	
13	S8	Brauchen Sie [polite address: do you need]	brauchen Sie [polite address: do you need]
14	S7	Ja, genau. (laughs) – ehm? [yes, exactly. (laughs) – ehm?]	

15	S8	Was ist? Was bedeutet Marktbedingungen? conditions? [What is? What does it mean: market conditions? Conditions?]	
16	S7	Warte. [wait]	
17	S8	Oh ja, OK. [oh yes, OK]	
18 (32:23)	S7	die Be-din-gungen [the conditions]	(Sound of typing in background. Student 7 looks up term in electronic dictionary on her computer.)
19	S8	Bedingung [conditions]	
20	S7	Ach	
21	S8	Bedingungen - condition	
22	S7	Condition	
23	S8	Ja. Was für ein Information brauchen wir? [which information do we need?]	
24	S7	Und dann schreibe - sie (laughs) - Sie suchen alle die Frage (incomprehensible, both laugh) - ehm [And than write - you search (may mean: research) all the questions]	MF.G [with kind regards] Student 8 and student 7
25	S8	Soll ich das schicken? [Shall I send that?]	
26 (32:53)	S7	Ja. [yes]	send email

The screen movements in the right-hand column developed into the email message below. The message they sent included one spelling mistake, but was grammatically almost accurate, with the exception of one further error: they used the noun 'information' in singular, while they should have used the plural.

Following German spelling conventions, the verb "forschen" should have been spelled in lower key, adding another orthographic error to the written version of the message.

---

**Email text** (verbatim)

[...]

Subject: Was sollen wir machen?

Wir sind Gruppe 4 und \*Forschen ueber die Marktbedingungen. Was fuer  
\*\*Information brauchen Sie?

M.F.G

Student 8 and student 7

-----  
\* should be written in lower case since it is a verb  
\*\*should be plural: Informationen

---

Student 7 and 8 checked the English translation in the online dictionary (turn 18) and found their suggestion confirmed (turns 19-22).

In turn 25, student 8 asked her partner whether she should send the email. By now, the relationship with student 7 as the L2 expert was already established, with student 8 happily accepting a subordinate role on most occasions, frequently seeking reassurance and approval from student 7.

There were numerous occasions when student 7 showed evidence of her high level of L2 proficiency which had undoubtedly an influence on her becoming the L2 expert of her dyad. For example, student 7 read a text out to her partner which was displayed on the screen in grammatically incorrect form:

On-screen: Wie stark ist die Konkurrenz im Kneipenmarkt \***der** neuen  
Ländern? (week 2, student 7, 15:58)

When she read it out aloud, she had corrected the errors in her mind and read:

Ja, - und wie stark ist die Konkurrenz im Kneipenmarkt **in** neuen Ländern?

On another occasion, she spontaneously paraphrased the meaning for Wahlbewerber to „das ist, wenn du [that is, when you] candidates for the election“ (week 2, student 7, 32:09).

As the examples above show, student 7 helped and supported her partner frequently.

### 5.2.7.1 Metalinguistic role in languaging and peer-tutoring

Dialogue 5.2.8 represents another example of learner reflection on language by means of using the language (metalinguistic function). The passage illustrates several incidents of focus on form and also exemplifies peer tutoring.

<b>Dialogue 5.2.8:</b> Week 4, student 8, 50:44 to 55:22			
turn	student	talk	screen
			Student 8 types
1 50: 44	S8	mmh – also am Ende – jeder Session – es ist Session? [mmh – at the end – each session – it is session?]	am ende jeder [at the end of each]
2 50: 53	S7	ehm – warte - Arbeitssitzung [ehm – wait – session] (she looked up word)	Arbeits
3	S8	mmh	
4	S7	mit 2 Mal s [with two –s-] (laughs) sitzung [session] Ja [yes]	sitzung
5	S8	sollen wir [shall we]	
6	S7	sollten – weil es - Empfehlung [should – because it - recommendation]	sollten wir
7	S8	mmh	
8	S7	kurz treffen [meet briefly]	kurze treffen
9	S8	um die Ziele zu clarifying [to clarify our goals, aims]	
10 51: 49	S7	Ja. – zu – um – zusammenzufassen und clarify. [Yes – to – summarise and clarify.] -Es geht auch mit zusammen – also zusammenzufassen sind nur ein Wort – und aufzuklären. [It also works with together – well to summarise is one word – and to clarify.]	um zusammen zufassen zufassen (deletes gap:) zusammenzufassen uum aufzu (goes back and deletes:) uumnd und aufzuklaeren (right click change:) aufzuklären
11	S8	aufzuklären was wir von jeder Gruppe wollen. [clarify what we want from each group.]	
12	S7	Ja. [yes]	was wir von jed
13	S8	jeder – den - jeden? [each]	jeden
14	S7	jeder – Gruppe ist die – die Gruppe, eine Gruppe – also – [each – group is feminine – the group –] - Das Problem mit diesen Cases ist, dass solange du nicht weißt ob es die oder der - mehr Probleme gibt zu wissen ob es der oder den ist. [The problem with the cases	jedenr jeder Gruppe wollen.

		is, as long as you are unsure about the gender (feminine or masculine), it creates more problems whether to use 'der' or 'den'.]	
52: 52	S8	Ja, also 'die' Gruppe und Dativ ist 'der' [Yes, 'the' group [feminine noun] and dative is 'the']	(moves cursor over) von jeder Gruppe
16	S7	Ja [yes]	
17	S8	OK	
[...]		[...]	
29	S8	Muss das üben [have to practise] (Pause)	
30 - 55: 11	S7	Wenn du einmal treffen willst – vor der Prüfung – wenn du frei hast, oder so [if you want to meet sometime – before the exam – if you are free, or]	
31	S8	Oh, danke [thanks]	
32	S7	Grammatik und so, kannst du .... [grammar etc, you can ]	
33	S8	Danke. [thanks]	
34 - 55: 22	S7	weil jetzt habe ich nicht so viele Probleme mit Grammatik, dann könnte ich dir helfen. [because I do not have so many problems with grammar, I could help you.]	(underlines:) Meinung ueber das Elektronische Rollenspiel

In turn 1 student 8 asked her partner whether the term session can be used in German. Student 7 looked up the word in the online dictionary and announced the translation: "Arbeitssitzung" (turn 2). Student 8 inserted the term into the report she was typing. Student 7 assisted with the spelling and highlighted that "Arbeitssitzung" is spelled with double-s (turn 4). In turn 5, student 8 continued drafting the text with her partner suggesting improvements, i.e., changing the verb form to reflect the more accurate meaning to make a recommendation (turn 6). Students 7 and 8 then continued phrasing the sentence together. In turn 13, student 8 voiced being unsure about the correct case to use, to which student 7 replied how important it is to be sure about the gender (the nominative form) for each noun. In German, all nouns belong to one out of three different gender groups: feminine, masculine or neuter. Depending on the gender and the appropriate case (there are four different cases, but they do not all carry explicit and different markers anymore), different forms and markers are needed for the definite and indefinite article, as well as adjectives and possibly for the noun itself. The element of German grammar is difficult for many students, especially since case markers are not only influenced by the word and its position in the sentence,

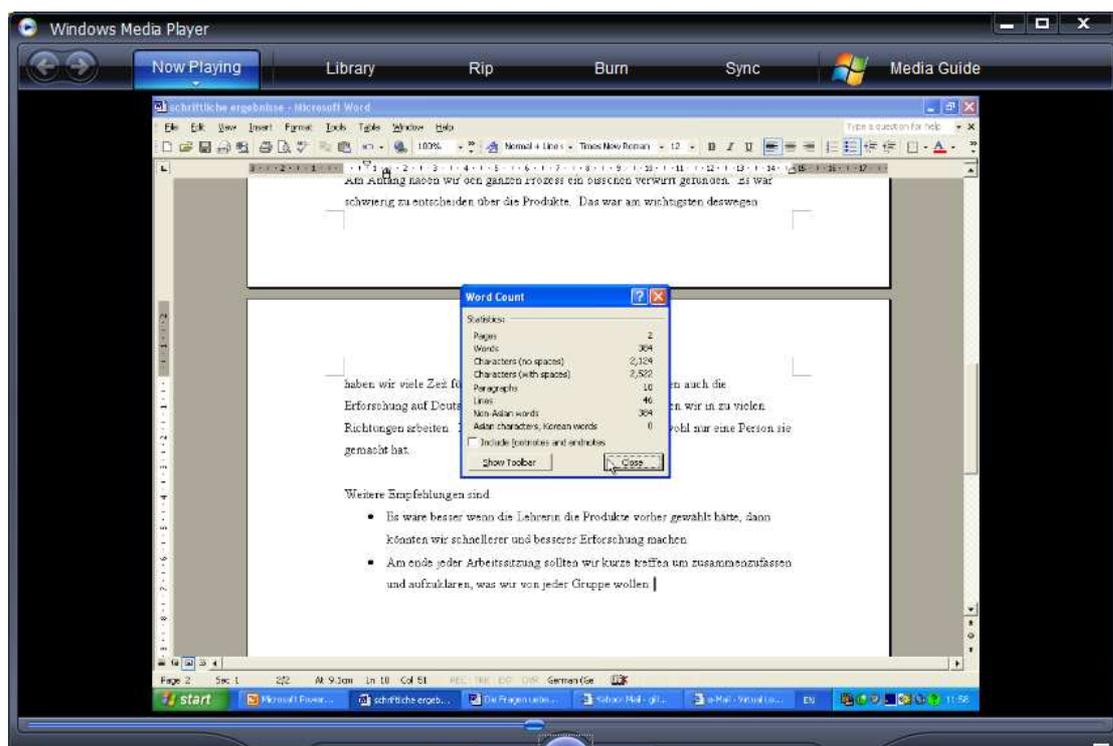
but can also be determined by the use of a particular verb or some particular prepositions.

The right hand column above shows the development of text on screen. The passage reflects four minutes and thirty eight seconds in real time in which the following text was produced:

printed verbatim	translation
<p>“Meinung ueber das Elektronische Rollenspiel</p> <p>Am *ende jeder Arbeitssitzung sollten wir *kurz treffen um zusammenzufassen und *aufzuklären, was wir von jeder Gruppe wollen.</p> <p>Am Anfang haben wir den ganzen Prozess ein bisschen *verwirrt gefunden.”</p>	<p>View regarding the ERP</p> <p>At the end of each session we should meet briefly in order to summarise and clarify, what we want from each group.</p> <p>At the beginning, we found the whole process a little confusing.</p>

While reflecting on the ERP activity, this dyad recommended a task change to improve the activity: To introduce weekly brief face-to-face meetings with all participants which could serve to clarify any issues. Later, this group made the same suggestion during the debriefing session. The screen shot below illustrates how the report document developed. The group kept an eye on the length and checked the number of words in between.

Screenshot 53:02



As student 7, student 2 established himself as L2 expert by helping his partner on numerous occasions, for example, by offering the correct gender for a noun (we 3, student 1, 21:18), by showing how to write Umlaut: "number lock is on – so it's Alt 148" (week 3, student 1, 22:30) or by suggesting plural forms (see dialogue 5.2.9, turns 1, 11, 13) and referring to cases (turns 11, 13).

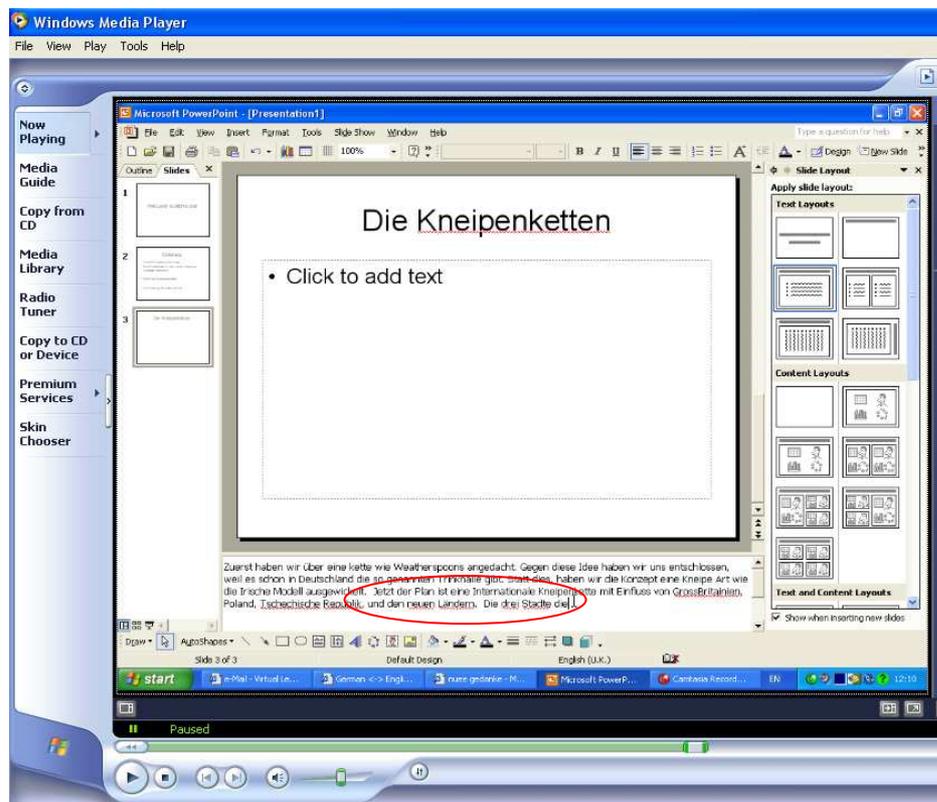
<b>Dialogue 5.2.9:</b> Plural and cases, Umlaut and spell checker			
Week 3, student 1; 1:03:50			
turn	student	talk	screen
1	S2	Jajaja. – die drei Städte wir haben gewählt, sind Großstädte [yesyesyes – the 3 cities we have chosen are big cities] Die drei *Städten, die wir haben gewählt – s-t-a -d-t – mit 'nem Umlaut [The 3 cities we have chosen – s-t-a -d-t – with Umlaut] – it is plural, you need an -e at the end ...	(student 1 switched to email 'nuee gedanke' and pointed at text:) die drei Statt; corrected: Stadt,
2	S1	I type it at the end	
3	S2	OK – Die drei Städte, die wir gewählt haben [the 3 cities which we have chosen], with an Umlaut, does it matter? #	Die drei Stadte, die wir gewählt haben
4	S1	I type it later	
5	S2	sind [are] – do we need to name them?	Leipzig
6	S1	Leipzig	
7	S2	We have named them elsewhere	
8	S1	Ah ja [Ah yes]	(deletes:) Leipzig
9	S2	gewählt haben, sind Großstädte [have chosen, are big cities]	sind gross stadte
10	S1	Ja [yes]	(changes to:) Stadte (adds:) -n Stadten
11	S2	No, it's plural: Städte [cities], unless it is dative then it's with an -n	(she deletes the) -n-
12	S1	Großstädten [big cities]	
13	S2	mit Universitäten [with universities]– now that is dative plural! Ja, that's right	mit Universitaeten, mit viele Touristen
14	S1	mit viele	
15	S2	mit viele Touristen, ja – I was gonna say: die Bevölkerung sind auch [the population is also]– used to – you know, eh, etwas neues [something new].	

# See screen shot we 3, student 1, 1:04:20: creating notes for the powerpoint presentation.

Several points are of interest here. In turns 1 and 3, student 2 said the same fraction of the sentence 3 times, but with slight variations (yellow background). In variation 1 he chose an incorrect word order. In variation 2, he extended with a relative clause but there is still a word order and a case issue unresolved. In variation 3, previous inaccuracies were corrected: "Die drei Städte, die wir gewählt haben". It seems that he did not pay attention to these structures while he uttered them since his concentration was focused on the screen and his partner's writing. He corrected her spelling of city from 'Statt' to 'Stadt' and then advises her to use the plural (3 cities) which involves an Umlaut (green background, turn 1). While his focus was drawn to the latter concerns about the level of accuracy in the written output typed by his partner (screenshot we 3, student 1; 1:04:20), he seemed to focus less on his own output, but was still capable of producing the accurate version eventually. The screenshot captures that student 2 was producing the accurate sentence, not because he was reading it off the screen, but rather he dictated the sentence to his partner and then got distracted again by her spelling. However, at that point his primary focus was not directed at her spelling anymore. Aloud, he asked himself whether it actually mattered whether an Umlaut was inserted (dialogue 5.2.9, turn 3). It seems that this acceptance of her incorrect spelling diverted his focus to his own output and he produced the accurate sentence fragment.

---

Screenshot we 3, student 1; 1:04:20



The screenshot captures the development of the note page, as was transcribed in dialogue 5.2.9.

---

The replies given by student 1 in turns 2 and 4 are elusive. When reminded to add the plural markers to cities (**Städte**), she replied that she intended to do so later. She gave the same answer when student 2 pointed again towards the need for Umlaut (turn 3). Her replies do not make sense. In this incident, a spell-checker (her preferred method of inserting Umlaut) would not have picked up the need for Umlaut or the plural "e".

In this task, focus on form is self-directed rather than a form of explicit instruction which has been shown to be beneficial to beginner to intermediate L2 learners (Radwan 2005). Focus on form as it occurred in the ERP is "forced" or pushed (Skehan 2003) through the necessity to produce L2 output. It leads to testing out hypotheses and practice of rules students had come across before. In the example above, student 2 observed his partner's written output, recognised spelling and grammatical mistakes, which prompted him to explain a plural form (**Städte**) to her. In any real life situation which requires the speaker to express themselves in L2, they are pushed to activate grammatical rules which had been previously encountered, in order to produce L2 output which serves their purposes. Students with a language proficiency level of B2 to C1 (Common European

Framework of Reference for Languages) have already encountered most of the target language’s grammar rules, but have internalised the rules to varying degrees, as the cross-section of examples (above) show. Student 1 exhibited a very low level of accuracy, and student 7 the highest of that group. Student 2 exhibited a good level of knowledge of L2 grammar, but had an issue with lexis: This student created some words which do not really exist in German (see above).

Several other examples of peer-tutoring and L2 expertise could be identified, for instance combining the translation of the word with additional information, for example, spelling as can be seen in the following case in point:

<b>Dialogue 5.2.10</b> : Vocabulary furthermore - darüber hinaus (week 3, Student 1, 1:07:14)			
turn	student	talk	screen
1	S2	Ja - darüber hinaus - furthermore	
2	S1	darüber hinaus	
3 (1:07:14)	S2	darüber hinaus – two words – darüber and then hinaus - [...]	she corrected: daruber hinaus [...]

The examples cited show strong evidence of L2 practice within such an ERP prompting student focus on form, particularly when producing written L2 output.

After this introduction of the findings using output theory, the following section will look at other occurrences of focus on form which may be seen as part of the language learning process.

### 5.2.8 Other language related episodes

Some findings could be viewed from different perspectives, for example, in response to RQ2 or 3. In order to avoid repetition, these occurrences were only reported once. Some other examples of focus on form which could be also viewed under the perspective of peer-tutoring, are elaborated in the next section which reports on findings in response to RQ3 which focused on behaviour and interactional patterns in the computer room. First, more examples of focus on form from the perspective of second language learning shall be given. These examples are not allocated to the three output categories named above, but are subsumed under the headings of spell checker use and tutor-initiated focus on form.

#### 5.2.8.1 Spell checker use

Most of the students were aware that spell checkers could be set for different languages and offer spelling suggestions once spelling errors had been detected.

Through peer-tutoring, some of the students were shown by their partner how to set the spell checker to German, if they were unfamiliar with the steps. Errors identified by the spell checker refer to the spelling only and not the meaning of the words. From the spell checker's perspective, in English, the adverb 'there' and personal pronoun 'their' can be used interchangeably in the same context, even though only one of the words can be semantically correct. The difference between correct spelling of a word and semantic use is not recognized by common spell checkers. The user of the spell checker tool has therefore got to make the decision to accept or reject the suggestion a spell checker offers. The more advanced the user's proficiency level is, the more informed the decision will be, the more likely it is that it is correct. On the other hand, just accepting all suggested changes would most likely lead to additional errors. The following represents an example of a student rejecting a spelling suggestion.

Student 8 used the spell checker for her powerpoint presentation, applying it to each slide individually. During that particular week she worked on her own. On one of the slides she was in doubt about the question word 'Wieviel' [How much] which was underlined in red. The computer suggested considering the use of "Wie viel", which reflects the spelling after the spelling reform of the 1990s. Student 8 was unsure about the proposal, marked the whole text box, set the language to German for another time, but than decided to keep her first spelling "wieviel". [Both forms are acceptable.]

If a word is spelled wrongly and cannot be recognised by the spell checker at all, alternative terms cannot be offered. One way of overcoming this problem was shown by student 1 who used a dictionary, found the correct translation and copied and pasted the L2 term into the document they created. Dialogue 5.2.11 illustrates this.

<b>Dialogue 5.2.11</b> : Copying term from dictionary - Example: Czech - <i>Tschechische Republik</i> - We 3, Student 1, 1:01:38 (verbatim); recording of student 1's computer screen			
turn	student	talk	screen
1	S1	Ehh	
2	S2	That's I - s-c- h e (tried to spell Czech Republic in German) Can I – I wonder if it will pick it up	Cze
3	S1	No, it won't	
4	S2	(tried different spelling options) Czeischiche – that's closer – I think it is a T at the beginning, you know.	Czeischiche (spell checker did not offer any spelling suggestion, she used the dictionary and looked up Czech)
5	S1	I can't spell today	Repl Republic
6	S2	T – Tschechische und die neuen Länder To put an Umlaut on?	(she highlighted and copied from dictionary:) Tschechische Republik (pasted it into note page, but it was still underlined red) und den neuen landern (spell checker did not offer alternatives she corrected) Landern.

Both students reverted to L1 while discussing the German spelling of Czech.

Student 1 was resourceful in finding ways to help improve the level of accuracy on the lexical level. While she added the dictionary function (turn 4) to the spell checker function in order to solve the problem of spelling Czech Republic, at another occasion she applied her knowledge of compound nouns to solve a spelling query (week 3, student 1, 30:29). Student 1 divided the noun pub chain (in German it is one word: Kneipenkette) into its components in order to use the spell checker successfully: She had written the noun "Kniepeketten", misspelling it by inadvertently changing -ei- to -ie-, a common mistake. This error was not recognised by the software, therefore no suggestion of alternative spelling was offered. Once she had separated the compound noun into two single nouns, only \*Kniepe was underlined. She used the suggestion Kneipe and re-joined the word again to Kneipeketten. The term was no longer underlined, even though it was slightly inaccurate since the interfix -n- was missing.

She needed 30 seconds to solve the problem as she perceived it. Since the spell checker did not object to the word Kneipeketten by showing it underlined in red, the student assumed it was correct.

This example highlights how student 1 used the spell checker successfully to solve a spelling problem by firstly separating the word, hereby applying her L2 knowledge in relation to compound nouns and their constituent parts. She could then apply the computer-as-tool function to overcome the spelling error. The example also highlights the student's concern to produce accurate language.

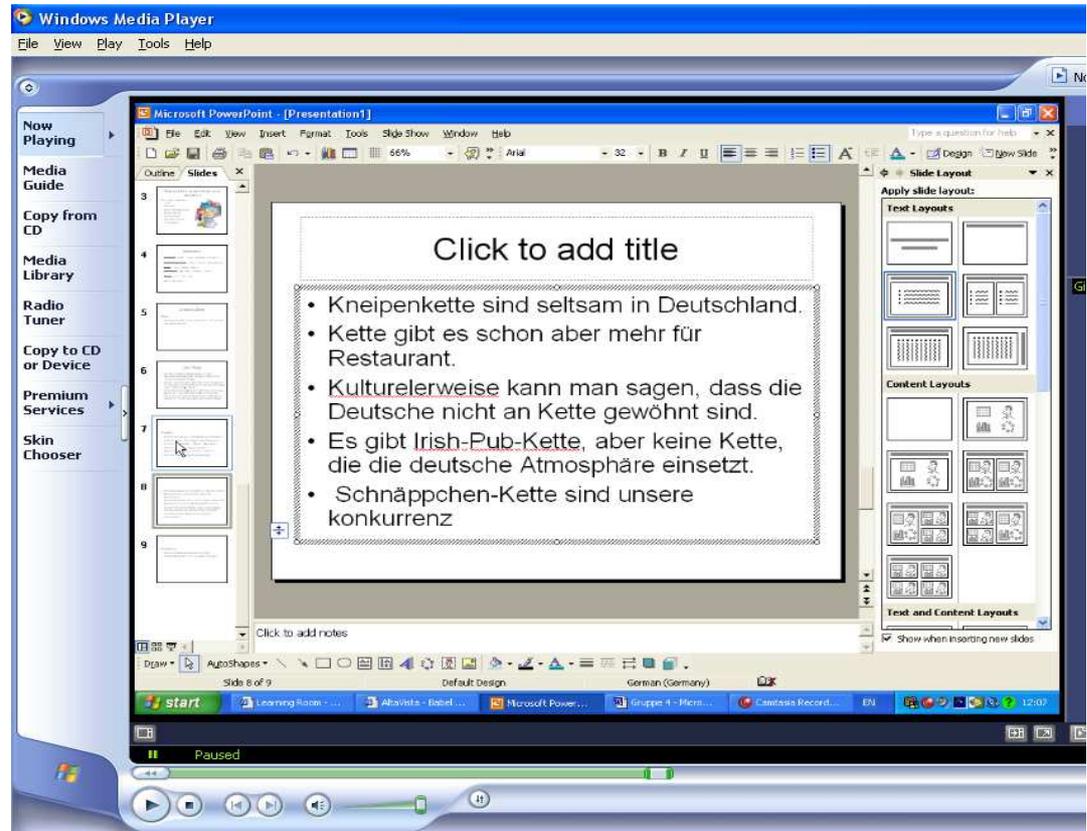
The most common case of accepting spell checker suggestions was in connection with the German's special character "Umlaut". The spell checker was used to insert Umlaut, often based on the spelling convention to represent Umlaut as the relevant vowel followed by an additional 'e', for example, 'ae' representing 'ä'. In such a case common spell checkers for the German language translate the 'ae' to Umlaut without difficulty.

#### 5.2.8.2 Tutor-initiated focus on form

While moving between groups, the tutor occasionally highlighted language use as displayed on the computer screen and questioned why the student had decided on a specific form. For example, student 8 had used the word 'seltsam' in the context of "Kneipenkette sind \*seltsam in Deutschland" [Pub chains are strange in Germany] (screen shot Week 3, student 8, 40:11). She had taken the sentence directly from her partner's summary which had been written during the previous week (cf. section 5.3, screenshot week 2, student 7, 50:10). Student 8 explained that seltsam would mean "nicht oft" [not often]. The teacher responded that 'selten' carries the meaning of 'nicht oft', but 'seltsam' means 'strange, odd'. Student 8 amended her slide text to "Kneipenkette sind selten in Deutschland" (we 3, G 40:19).

---

We 3, student 8; 40:11



---

A little later student 8 was asked what she meant with the term “kulturelerweise” (we 3, student 8; 40:50), as in the following sentence:

\*Kulturelerweise kann man sagen, dass die \*Deutsche nicht an \*Kette gewöhnt sind.

She replied that ‘kulturelerweise’ referred to ‘culturally’, but that it could be expressed more simply without that term. She deleted the word which had an impact on the word order, a fact which was recognized by student 8 who changed the sentence to “Man kann sagen, dass ...”

The tutor prompted her further to think about the grammatical accuracy by reading the next few words to the student and then pausing. After this simple prompt, student 8 was able to continue correcting the sentence to

“**Man kann** sagen, dass die Deutschen nicht an Ketten gewöhnt sind.”

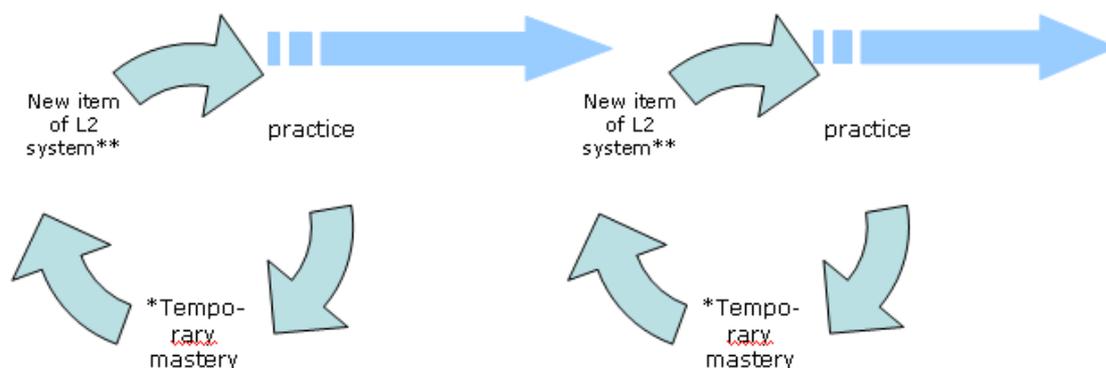
[One can say that Germans are not used to chains.]

In this example, the student was able to make some of the relevant corrections herself immediately. Her awareness in these incidents had been prompted, but not the actual self correction which occurred without any particular prompting. She

was confident in word order rules and could apply them with ease once she focused on them.

### 5.2.9 Discussion

Examples like those above open a wider discussion about questions, for example, “What exactly is language learning considered to mean” (Levy and Stockwell 2006:164)? SLA includes the introduction of new concepts, structures, grammar and vocabulary, but it also means practice which (ideally) leads to mastery of the different elements which are part of the language learned. In addition to formal elements, as for instance grammar, a successful L2 learner is aware of cultural norms which have an impact on spoken and written forms (Ferreira and Lantolf 2008; Magnan 2008; Schröder 2004). One could visualise the language learning process simplified as a sequence of learning cycles dealing with linguistic features which should theoretically lead to mastery of the language, where new items of the L2 system are introduced, practised, leading to the next item being introduced and practised, etc. (Figure 9).



**Figure 9 Simplified L2 Learning Cycle**

\*Temporary mastery refers to mastery as evidenced in the accurate use in controlled tests with limited and selective demand on the L2 production, for example, cloze tests.

\*\* New item of L2 system can refer to any part of the language system, for example, structure, including word order, grammar, vocabulary.

---

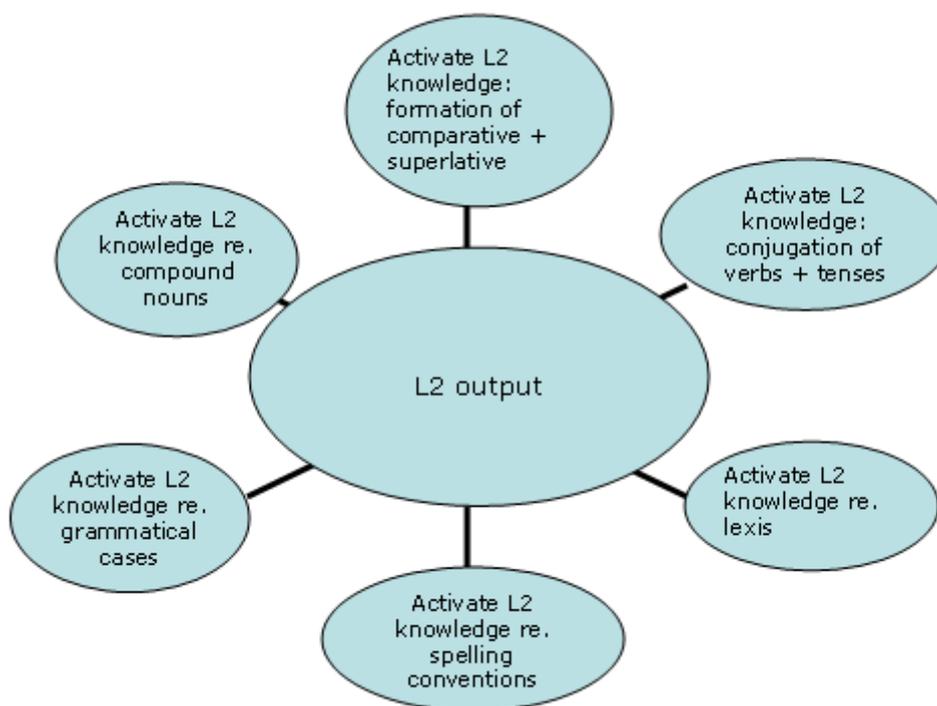
Before L2 structures, grammar, and vocabulary are fully internalised, the student engages in long periods of L2 practice. The computer can be seen as an ideal environment for repetitive practice, it is patient and can facilitate practice of discrete items, for example, in form of gap filling or multiple choice exercises. The more advanced a learner becomes in the mastery of L2, the less appropriate exercises become, which work with discrete items (drill), since this creates a very

artificial situation for L2 use. If holistic or naturalistic L2 output is observed after periods of instruction of specific forms, the frequency of (1) use and (2) accurate use of the specific forms is lower than in controlled tests which concentrate on the specific form only, for example, cloze tests (Bardovi-Harlig 2000). Naturalistic L2 production places considerably higher cognitive demands on the learner since increasingly more complex L2 systems need to be taken into consideration while producing output. This increased complexity has an impact on the learner and their practice of L2, as the examples above show.

While students continue the L2 learning process, develop their interlanguage and improve their level of L2 proficiency, the SLA process takes on different characteristics from those illustrated in Figure 9. The more advanced the student's L2 proficiency, the less can their L2 learning experience be described in circles which follow a linear progression as shown in Figure 9 where the introduction of new L2 phenomena need to be practised in order to achieve mastery, followed by the introduction and practice of the next new L2 phenomenon. Advanced learners, unlike beginner learners, have been explicitly exposed to most structures already which they need as tools to express themselves in L2. However, the process of internalising this knowledge which can ideally lead to mastery of L2 is not as straight forward as Figure 9 may suggest. Mastery which is achieved after some practice of the L2 phenomenon is initially temporary and can be evidenced in controlled tests but not necessarily in naturalistic use, a phenomenon which was referred to as a sampling problem (Bardovi-Harlig 2000:392). Being able to achieve a high score in cloze tests which practise discrete items does not necessarily mean the learner can apply the knowledge to naturalistic L2 production or that it leads to long-term mastery and L2 proficiency. This can be illustrated in the following example: A learner of English as a foreign language may have been exposed to explicit teaching of the s-ending to verbs in third person singular, present tense, but for various reasons may not master the accurate use in holistic contexts for some time. Corrective feedback can play an important role in the process of developing mastery, but its effectiveness "is likely to depend on the current state of the learners' grammatical knowledge" (Ellis 2008:355). The project under discussion used corrective feedback in various forms of explicitness as was shown above.

The more advanced learners are the more aware and conscious they may be of the type of knowledge they need in order to produce accurate L2 text. However, they may also be aware of not being able to recall the appropriate grammar rules, structures and vocabulary, similarly to Swain's observation (1993) that learners may become aware of gaps in their interlanguage when forced to produce L2. Examples of such uncertainty were given above, for instance the discussion about

the formation of a superlative (dialogue 5.2.3), and the question of using a separable verb (dialogue 5.2.1). In both cases the correct L2 use does not reflect advanced levels of proficiency in L2. Instead, the examples belong to beginner to intermediate levels of L2 knowledge and therefore reflect low levels of L2 proficiency. These examples point towards a different process in SLA than illustrated in Figure 9. The more advanced learner can produce more complex L2 output, but they may also hesitate at expressions which involve already encountered L2 phenomena, for example, rules regarding the formation of comparative and superlative forms. In this context, Figure 9 can be extended to reflect the different learner activities in the acquisition process. Figure 10 represents the learner output in the centre. While the learner creates holistic L2 output, uncertainty regarding correct forms can occur which leads the student's focus to be drawn to activation of previously learned rules as represented in the satellites floating around the central circle of L2 output. Often in collaboration with their partners, students seek to overcome their uncertainties and they produce accurate L2 output through this collaboration (cf. Zhao and Bitchener 2007).



**Figure 10 Activating Prior L2 Knowledge**

During the process of producing L2 output, the learner may experience uncertainty about accurate and appropriate grammatical phenomena, structures and lexis, as is exemplified in the representation above. The satellites around the central circle represent focus on specific forms as was observed in the project under discussion.

Alternatively, students may seek confirmation of accurate and appropriate use from the teacher. It appears that some students may feel more comfortable to collaborate with peers regarding their L2 queries than with their teachers (Zhao and Bitchener 2007).

Language is normally used in authentic and complex situations, in which "language is very much in the service of an individual's communicative goals" (Levy and Stockwell 2006:168). Language therefore needs to be practised in a context meaningful to the learner and in natural, i.e., holistic settings (Chapelle 1999, 2001). L2 learning at an advanced stage means continuous practice in complex and meaningful settings which activate all knowledge the learner possesses of L2. Practising L2 should eventually lead to lesser frequencies of errors. Practising L2 holistically excludes the notion of unnaturally dissecting structures to practise them in isolation. Once the learner is exposed to L2 production in naturalistic settings, the cognitive demands are great and the error frequency is likely to increase initially, particularly in spoken utterances, where time for careful consideration of all structures is not given. As an example, dialogue 5.2.9 showed that student 2 used incorrect word order twice when he created text which he dictated to his partner, while his concentration was directed towards her spelling. He used the correct word order in the third utterance where his focus was less directed towards her spelling: "Die drei Städte, die wir gewählt haben - with an Umlaut, does it matter?" (dialogue 5.2.9, turn 3). He had already referred to the correct spelling with Umlaut and she responded twice she would deal with it later. His focus was no longer mainly directed at her spelling as indicated by his comment whether it mattered, and his own L2 output gained in accuracy since less cognitive demands were put on him once his primary focus was no longer directed at her spelling. This example of word order and the shifting focus away from the partner's written output is not only interesting in the context of L2 learning, but also from the perspective of research methodology. Had a quantitative method been applied to look at frequency of (in)accurate L2 use in L2 oral output, the three occurrences of "Die drei Städte, die wir gewählt haben" (dialogue 5.2.9) would have registered as two inaccurate uses followed by one correct version. As the analysis in context showed, the two inaccurate word order utterances were most likely caused by the distraction posed by the partner's inaccurate spelling and student 2's concentration on correcting the written text. Once he accepted that his efforts to change the spelling at that moment were in vain (since his partner insisted on dealing with it later), his concentration seemed to focus more on his own output and he produced a correct fragment involving a relative clause.

Learners who draft a written response can spend more time perfecting the written text (Warschauer 1999), focusing on individual items sequentially. This

process is visible, for example, in Table 10 and its following email text which illustrate the development of the written output and the correction of initial errors.

The examples above support the notion that language learning for advanced learners means less the introduction of structures and application in practice exercises (as visualised in Figure 9), but rather the use of L2 in holistic and naturalistic tasks which activate all L2 knowledge of previous stages in their SLA endeavour (as visualised in Figure 10). Many of the examples above did involve vocabulary, structures and grammar rules the students had been familiar with in the past, but which had not been fully acquired, hence the discussions within dyads about how to form a plural, which case would be applicable, hereby providing a window into their L2 learning processes. This finding underscores the task design decision not to include a pre-task practice sequence focused on vocabulary and a post-task practice phase focused on form, as advocated by Willis (2004). The examples of L2 output show that a variety of different (often) lower level rules for structure and grammar need to be activated for appropriate L2 output stimulated by the task, but that these may vary according to the communicative goal (Levy and Stockwell 2006) the learners strive to achieve and their personal level of L2 proficiency, their interlanguage. The task design decision to deal with focus on form as to the needs of the individual learners during the main task cycle, i.e. during pair work in the dyads, is therefore more effective and appropriate for advanced L2 learners as were represented in this group.

The role of the computer as integral part of the ERP is manifold and goes beyond the stimulus – response exercises which can be found for beginner learners. In terms of L2 output as part of the ERP, the computer facilitates CMC in form of email exchanges between the different groups. Furthermore, practice with CMC may also have the positive effect to enhance fluency in oral communication (Arnold 2007). Within the ERP, the computer is generally the locus for text production where computer-based tools can be used to increase accuracy (spell checkers and dictionaries), where text can be drafted and re-drafted (Tella 1991; Warschauer 1999). The computer as a tool for text production can become the facilitator for incidental focus on form (Stockwell and Harrington 2003; Zhao and Bitchener 2007), and can lead to discussions about accurate and most appropriate L2 use, as the transcripts of the oral exchanges reveal. As part of the ERP, the computer also becomes the facilitator to create a meaningful scenario in which L2 learners can practise the different language skills in a natural and holistic setting.

#### 5.2.10 Evaluation criteria

In the context of SLA, the following of Chapelle's evaluation criteria (2001) are applicable and shall be looked at in turns: Language learning potential, learner fit and positive impact regarding L2.

Chapelle defines the language learning potential to go beyond the "opportunity for language use", but to refer to "the extend to which the task promotes beneficial focus on form" (2001:55). As argued above, the advanced learner does need opportunities to practise L2 in holistic contexts, but with an incentive to pay attention to accuracy. Incentives to strive for accuracy can be born out of the directedness of the student L2 output towards a wider audience, beyond the walls of the classroom activity (Warschauer 2000b). Furthermore, the purpose of L2 practice is enhanced when the content has relevance to the students involved, as in this case where the ERP practises L2 in relevant subject-specific contexts. Associated with classes teaching persuasive writing and debates, Beach and Doerr-Stevens (2009:462) refer to the rhetoric of significance in relation to the students being "more likely to engage in collaborative arguments if they perceive an issue or problem being addressed as significant to their lives". By extension from persuasive writing in L1 to L2 practice mimicking professional life, the same is applicable to the case of the ERP. The content represents significance to the learner which can have a positive impact on their motivation to focus on form and achieve high accuracy.

The examples of L2 production above illustrate that the learners were striving for accuracy and addressed uncertainties by consulting different support tools and through discussions with their partners. Once uncertainties could not be solved immediately using either of these strategies, there was evidence that students may use the heightened awareness of an issue to be vigilant towards incoming communication and may adapt forms which were seen in, for example, an incoming email. Therefore the task has language learning potential. Learner fit "takes into account the individual differences in linguistic ability level and non-linguistic characteristics. Skehan suggests that the teacher choose tasks that will provide learners an opportunity to work with a range of target structures appropriate to their level" (Chapelle 2001:55-6). This criterion is fulfilled in the ERP task since the students chose their primary Internet-based texts themselves and when the level of linguistic difficulty was too high they would just simply abandon the site and look for other sources. When dealing with incoming emails from fellow students the linguistic level did not exceed the individual's level of the receiving student to a degree which could not be overcome. The criterion of positive impact has been already mentioned in the context of the first research question which dealt with the ERP's potential for content learning. Chapelle defined this criterion as fulfilled in a

task in which learners are helped "to gain pragmatic abilities that will serve in communication beyond the classroom" (2001:57). The debriefing session made clear that students were aware of the advantages this ERP task gave them over and above the traditional classroom exercises. In their own words, it prepared them for future professional work, for example, for email communication in a work-related context.

#### 5.2.11 Summary of answer to the second research question

The accessed primary Internet materials used by students could be presented in L1 or L2, or in the case of some students, even in a third language (e.g. ERP6, student 7). Accessing information, for example, regarding the product, in English as well as in German, reflects behaviour found in the real world, where content and task-fulfillment are situated in the foreground. The student used all possible sources of information. Working in a company and researching a product would also most likely mean accessing the information in all the languages the researcher is competent in. That kind of task would therefore reflect the type of activity which could be asked of a language graduate working for a business which operated in different language zones. Particularly during earlier ERPs (e.g., ERP4 and 5), transcripts of the oral communication between partners showed that students rather asked each other for the correct forms, including translations, instead of consulting electronic (or book-based) dictionaries. They appeared to favour instant solutions to their language queries. If instant answers were not forthcoming, students participating in earlier projects rarely went through the effort of looking up words, for example, using online dictionaries. By the time of the last electronic role-play, the students seemed very familiar with the use of electronic dictionaries and consulted them more frequently, most likely a reflection of their increased familiarity with technology in general (Blake 2008; Oblinger and Oblinger 2005; Oxford and Oxford 2009).

The ERP catered for different levels of proficiency within the learner groups. In terms of L2 output, the discussion of content showed that students engaged in communication at different levels of proficiency. Evidence of focus on form could be shown with language-related episodes often involving lexis. However, focus on form relating to, for example, cases, noun-verb agreement, compound verbs, irregular verb forms (especially past participles), and word order could also be identified. Skehan (2003) links task research with research in SLA and suggests that students use the planning period of a particular task to "reinterpret the *content* of the task, in such a way that they make the task more complex to do, and as a result, this pushes them to need more advanced language" (Skehan 2003:400;

emphasis in *italic* in original). This process may cause students noticing gaps in their interlanguage, as seen by output theory being a pre-requisite for a potential change and opportunity for language learning. The pre-task planning stage may therefore facilitate language learning. The ERP under discussion here did not incorporate such a planning phase but the examples cited in this chapter show that for the advanced learners participating in the activity focus on form did occur naturally and incidentally, in accordance with the individual learner's level of L2 proficiency (Long 1997; Long and Robinson 1998; Zhao and Bitchener 2007). Student initiated or self-directed focus on form was particularly prompted during the production of written output, while students were striving for L2 accuracy. Students seemed to have some recollection of the correct forms to be used, but frequently appeared to feel unsure while creating output. Practice of form in isolated exercises, for example, gap filling, would most likely not remedy this problem. The repeated need for output in an authentic situation may be more beneficial in the long-term. In order to maximize student support in such a setting, it may be helpful to the learning process to provide clear guidelines on how to use tools provided through the medium computer, for example, electronic dictionaries and spell checkers. Even though the different ERPs show an increase in the use of computer tools with time, students could be supported in effective methods to use the medium's affordances. The question of affordances will be elaborated in the next section, in response to RQ3.

The data clearly indicates that the task-based approach to the task design, integrating subject-specific knowledge and embedded in constructivism represents a CALL task, i.e. a computer-assisted language learning task which is true to its name: assisting learning on the level of language as well as content. The task gives learners the opportunity to practise previously learned structures and grammar forms, to overcome uncertainties of L2 use in collaboration with peers (Zhao and Bitchener 2007) and through corrective feedback from the tutor (Ellis 2008; Hyland 2003). The task can thereby support learners in the process of acquiring these forms (Blake 2008; Long and Robinson 1998). The examples showed that collaboration and peer-tutoring worked very well in some incidents, for example, as represented in students 7 and 8 (ERP6), but can also comprise the danger implicated in the development of the unchallenged expert role which can give the so-called expert disproportional power. Unlike setups with experts and novices where the expert's level of proficiency is consistently considerably higher than the novice's (Belz 2004), for example, advanced proficiency and intermediate level (Lee 2008), the developing expert roles observed in the project under discussion were less pronounced. In this project, the developing expert's ability to advance their and their partner's interlanguage was dependent on their own level of

expertise. The examples show that the experts can be instrumental in the learning of (in)correct forms. While peer tutoring was very successful in some dyads, for example, group 4 (ERP6), it occasionally was more problematical in group 1.

The role of the expert shall be further discussed in the next section which is dedicated to answering the third RQ.

### **5.3 Findings: Behaviour in the computer room**

This third section of the chapter will focus on the interaction between students, and students and the computer. The first part presents the findings gained through grounded theory methods. Categories and properties are introduced and discussed. The second part presents and discusses embedded case stories which emerged through data analysis.

At the end of the section a summary of the chapter is given.

#### 5.3.1 What do students actually do, when involved in the ERP?

What kind of behaviour and interactional patterns emerge?

In this thesis, the terms behaviour and interactional pattern are used to refer to actions taken by the students which relate to the ERP in the wider sense, i.e., actions which exemplify the student behaviour in the computer-room (Leahy 2004 a and b) and can be subsumed in the question: What do students do when engaged in such a learning task? Even though these actions are defined to relate to the ERP, they may not be related to the solving of the task. My interest in pursuing this question was to find out how students appropriated the computer-assisted learning environment for their purposes, how they used ICTs, including the Internet, the computer and any technical support function, and how they communicated with the partner/s, in the process of solving the task. In this sense, appropriation does not mean "a gradual process of mastering ICTs, it is a question of how we [or rather the participants of the study] relate to and interact with concepts, tools, and knowledge" as Lund (2003:1) described the term in reference to Bakhtin. Bakhtin (1981:294), referred to appropriation of words as a part of language as "seizure" and "transformation into private property". The words belong in part to others, the word "becomes 'one's own' only when the speaker populates it with his [sic] own intention, his [sic] own accent, when he [sic] appropriates the word, adapting it to his [sic] own semantic and expressive intentions" (Bakhtin 1981: 293).

The question I was pursuing was therefore a very general one, seeking to learn about the students' appropriations of "concepts, tools, and knowledge" (Lund 2003:1), to learn about how students adapt words for their purposes, their "own semantic and expressive intentions" (Bakhtin). The spoken and written language, and the smaller units of words, constitutes an essential element in the process. The task was conducted in a second rather than a first language, even more so did language have to be appropriated too. The process of fulfilling the task purposely incorporated the need for negotiation and therefore a sociocultural element, as was elaborated in response to RQ2. This question of student behaviour in the CALL

environment had been of interest to me for some time. In the following I will firstly take a longitudinal perspective and present significant issues I already discovered in earlier ERPs, and which are closely related to language use. Secondly I will approach the data of the core case study with a grounded theory approach. The third and final part of this section presents embedded or mini cases which had become salient during the process of data analysis and interpretation.

### 5.3.2 Longitudinal perspective

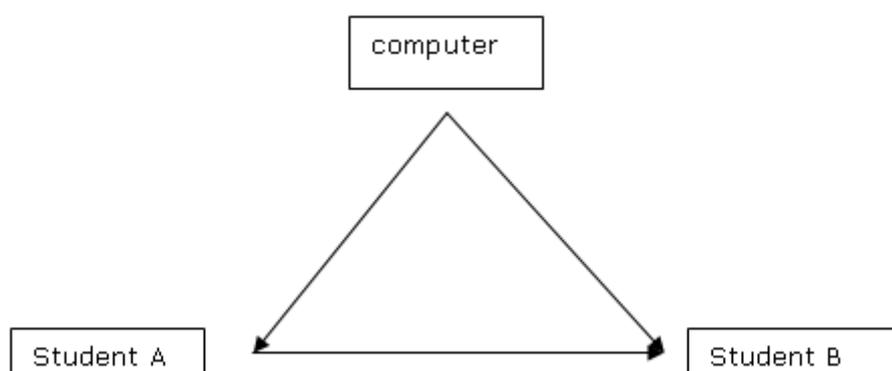
Taking a longitudinal perspective, previous ERPs showed that students stayed focused on their task and participated well. To a large degree they used the opportunity to speak to their partners in L2 and were in some cases aware that the ERP facilitated more oral interaction than the traditional classroom: They did not have to share the speaking time with all their fellow students, but only the partner in their dyad (Leahy 2004b). The ERP's potential for high concentration on the task and general high level of student involvement, including frequent oral interaction, was evident during all ERPs. Only in few cases could it be observed that students seemed less prepared to interact actively with their partners (Leahy 2004a). This hesitation was most likely due to the obtrusiveness of the cassette recorder which had been placed between the partners of each dyad. The same students interacted well in group work in the traditional classroom, the reticence to interact in the CALL setting was therefore likely to have been caused by the environment, for example, the cassette player. The general increase in oral interaction between partners engaged in the ERP contradicts earlier findings by Stepp-Greany who stated that

[v]ideotaped observations demonstrated that there was generally less student-to-student interaction, and less teacher-to-student interaction in the lab than in the regular classroom, unlike the computer-mediated projects cited earlier (Beauvois, 1994, 1998; Hartman et al., 1995). (Stepp-Greany 2002:174)

The tasks Stepp-Greany's students were involved in differed from the collaborative task of the ERP and so did the method of data collection, which may well have had an influence on the student interaction. For example, video recording the students may be experienced as intrusive and may be a contributing factor to less student-to-student interaction. On the other hand, the more recent core case study confirmed earlier findings of previous ERPs and showed high levels of interaction between partners. During the core case study, a higher interaction rate was most probably caused in the unobtrusive recording method facilitated by the use of the Camtasia software.

Another finding borne out of previous ERPs showed that students sometimes used the computer screen as a constituent part of a triangular form of

communication (Leahy 2004b) in which the actually spoken words and sentences demonstrated a low level of accuracy and did not transmit the full meaning of their communication or were even incomprehensible without access to the content displayed on screen. Through cross-referencing of data collected, in particular the emails and the transcribed oral interaction, it became clear that the computer screen had become an integral part of the communication between the partners. Mapping semantic units in one corpus against those in another corpus revealed the triangular communication pattern. The interactional pattern observed reflected an extension of message-sending and message-receiving which went beyond the simple communication models and included the computer screen into the communication process (Figure 11).



**Figure 11 Triangular Communication**

Triangular relationship of oral communication between partners and screen  
[This graph was previously published in Leahy 2004b]

---

Previous projects did not benefit from the Camtasia recordings and matching exercises were therefore harder, in particular since computer clocks were not synchronized and the counter on the cassette decks used for the recordings were not based on time units. Consequently, it was not possible to match the output via technical counters, but only via semantic units. The same observation that the place of learning, i.e., in front of a computer screen, can have an impact on the type of oral communication between partners, has been made by other researchers, van Lier (2002) referring to this phenomenon as "triadic interaction" (compare also to Jeon-Ellis, Debski, Wigglesworth, 2005).

In my study referred to above (ERP4), this triadic or triangular interaction led to oral communication which was incomplete and therefore grammatically incorrect. L2 practice in class should serve the development of interlanguage towards

increasingly higher levels of accuracy, rather than producing communication low in accuracy. At first, the discovery that this L2 output had low levels of accuracy and comprehensibility concerned me. However, this particular pair of students also produced cohesive written email messages and summaries. The incomplete oral interaction during the first two weeks did not seem to have had a detrimental effect on the L2 production otherwise and appeared to only represent a form of temporary shorthand which regarded the computer screen as a constituent part(ner) of the interaction. The presence of the computer and the information on screen, which was part of the content of the communication, appears to have made it unnecessary to incorporate the same information explicitly into the oral messages exchanged. Similar triadic talk could be found in the core case study of this thesis. Occasionally, students talked to one another in shorthand, with incomplete sentences, where full comprehension could be gained once the screen display could be taken into consideration. Since the data collection of the core case study benefited from the visual representation of the screen content, it was easier to make sense of the shorthand talk than in previous ERPs. Again, this temporary use of incomplete sentences did not seem to have a negative effect on the text production otherwise. Another form of communication in incomplete sentences was described in Figure 8 of the previous section. Occasionally, students were so involved in, and focused on, the task that they anticipated what the partner wanted to say and completed their started sentence for them. For the researcher, this also meant being confronted with incomplete utterances by individual students, but once read as continuous text irrespective of the speaker (or listened to the recording), the utterances made perfect sense. This phenomenon is different from triadic communication as was discussed in section 5.2.

Unlike earlier simpler methods of data collection, the present core case study allowed for much deeper understanding of the processes the students engaged in. The Camtasia recordings presented the screen movements and screen displays comprehensively while playing back the recorded talk between students. Through the simultaneous observation of the screen activities and the possibility to listen to the student talk, I was able to write transcripts which represented both and helped to analyse the material to a much deeper level.

Next, I shall put the approach to the 3<sup>rd</sup> question into context.

### 5.3.3 Core case study: Findings relating to research question 3

The third research question investigates how the students interact in such a computer-assisted language learning environment, both in relation to one another as well as students with the computer. The likely impact of the time factor, i.e., that the students' degree of computer literacy could be expected to be more

advanced in later projects in relation to the earlier ones, has already been highlighted. It has been also suggested that the individual learner differences and learner preferences (Skehan 1998) may play a significant part in the ways the students interact in the ERP environment. Dealing with complex human beings, it could be expected that students did not continuously concentrate fully on the task during the period of eight hours class time. It could be anticipated that students occasionally made use of the access to the Internet and email in order to deal with private matters, or that communication between students occurred which was not directly related to the task. Furthermore, students could exercise their choices in computer pathways, for example, by choosing that the response to an email was sent by creating a new email, by forwarding another, by using the 'Reply' button, or the 'Reply to All' button. They could decide whether responses were copied to others, whether addresses were typed individually or they made use of the provided table of group members and their email addresses which could be copied and pasted. Students' behaviour, their choices in the computer assisted learning environment could have an impact on the whole ERP. Students could also exercise choices when composing text, for example, email communication. Was the text written into a word document which facilitated the easy use of the spell checker function<sup>51</sup>, and was then sent as an attachment, or was it written straight into the email? Were email responses written at the top of the email window, thereby creating a communication trail with older messages below the newer ones or were responses written into previously sent messages? Did the sender sign-post their messages for the addressee, for example, by providing a title for the email or making clear that answers were written next to the text of the incoming email? The answers to these questions are relevant in relation to the chosen pedagogical approach of constructivism. If students experience difficulty in negotiating the environment that could have an impact on the purpose of the task, the collaborative construction of knowledge could be compromised. Furthermore, it is of interest whether students made use of a spell checker, electronic dictionaries, a vocabulary list, search engines etc. To know how students used such functions is important in order to come to an evaluation of this type of computer-assisted language learning. If the use of an electronic dictionary supported the student to produce a better text or helped them comprehend a new text more easily, it truly assisted them in their learning process as the term CALL suggests. Hence, the students' level of computer literacy could have had an impact on the time spent on the task and the tools used. If the level of computer literacy was low, the software-

---

<sup>51</sup> Early email applications, as the one used for the ERPs, did not have a spellchecker function for L2 (German).

inherent or application-inherent functions named above may have been less helpful if the student found navigation between windows difficult.

This research question investigates whether students' behaviour in such a learning environment can reflect interactional patterns which can be described and explained, and thereby can possibly contribute to an understanding of the effectiveness of such a CALL task. Insights into the behavioural patterns may be useful in informing future computer-assisted language learning task design. Two methods were chosen to address the third research question: Grounded theory methods were used which facilitated the application of codes to the transcribed student actions. The coding process led to the discovery of categories and properties which describe and represent the student actions when engaged in the ERP. Secondly, during the process of analysis, aspects of student behaviour emerged which reflected relevance to the research questions and which are presented in this thesis in the form of mini cases or stories of embedded cases (Stake 2005:451). In particular, five such embedded case stories are presented at the end of this section. But first the results of the application of grounded theory to the data shall be introduced. Initially, I will focus on the discovered categories and properties during the individual weeks and then contextualise the results and look at them from a more holistic perspective of the whole project.

#### 5.3.4 Categories gained through application of GT

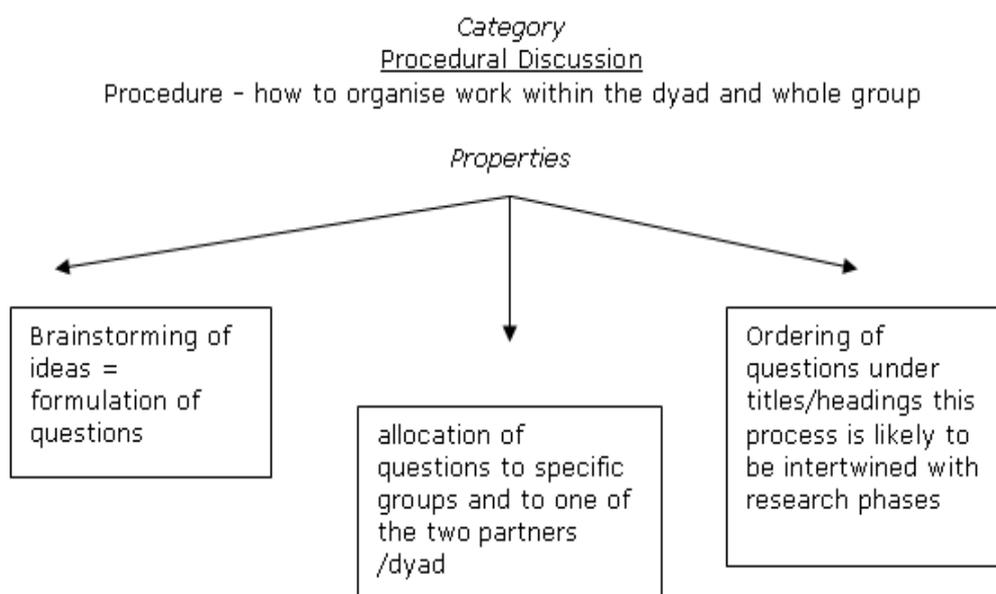
Coding with grounded theory methods involves going through the process of initial coding, focused coding and theoretical sampling with the ultimate aim of development of theory. This thesis does not attempt to develop an encompassing theory for ERPs, but it aims to contribute to the knowledge base of student behaviour and interactional patterns in CALL tasks such as the ERP. The particular conditions of the research project did not facilitate theoretical sampling and the simultaneous coding intertwined with data collection. The chapter on methodology introduced the approach to grounded theory which was followed here. The same questions informed the coding process consistently, namely "What is this data a study of?", "What is actually happening in the data?", "What is the main concern being faced by the participants?" (Glaser and Holton, 2004, paragraph 48), or in Charmaz' (2004:507) words: "What is going on?", "What are people doing?" In answer to these questions, categories and associated properties could be found.

The following presents a breakdown of the categories and properties into their weekly occurrences. The specific tasks changed on a weekly basis, emphasising different skills. The task had an impact on the individual week's findings which shall now be introduced.

#### 5.3.4.1 Categories gained through application of GT – Week 1

Newly emerging categories with more than 1 property are represented diagrammatically on a week-by-week basis. Re-occurring categories were only represented diagrammatically when the constellation of properties had changed. The category “expert role” was identical in weeks 1 and 2 and was therefore not represented visually twice. During the first week, four categories were identified which were published previously in Leahy (2008). These categories were: procedural discussions, development of expert roles between partners, facilitation of working relationship, and dealing with language problems.

To each of these categories properties could be assigned. The groups started their work with procedural discussions, the first category, in which they agreed how to deal with their specific task, and how to divide the labour between them as well as the other groups (Figure 12).



**Figure 12 Procedural Discussion**  
(week 1:1; Leahy 2008:258)

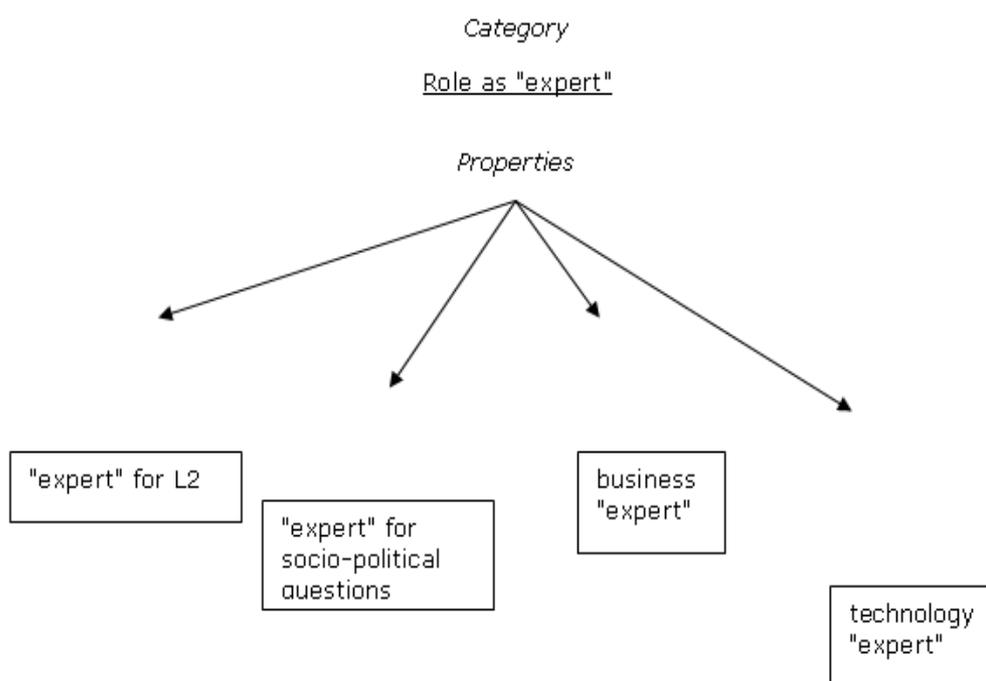
---

Three associated properties could be assigned which were characteristic for the first week of the ERP: After a short brainstorming session, students discussed ideas which led to the formulation of questions which they intended to answer during the project. Once questions had been formulated, they were arranged under headings and titles. The questions were allocated to specific members of the ERP to answer.

The second recognized category was that of the expert role. This category, with various properties, could be identified in each of the four weeks. Within each dyad, one of the two students tended to become an expert in one of the skills

needed for the solving of the task. The role of expert was not necessarily permanent, but rather fluent, i.e., one student could appear expert in a particular area for some time and ask the partner for advice in the same area, for example, L2, at other times. This is not surprising because all of the students were still acquiring the language and had not reached full proficiency. Even though one partner may have felt more confident in questions of accuracy most of the time, they may have felt unsure at other times.

Students took the role of expert in different areas of expertise. These areas of expertise formed the properties which fed into the category. During week 1, four distinct areas were recognized: the expert for the foreign language, the expert for socio-political questions, a business expert and one for technology questions. Figure 13 illustrates this.



**Figure 13 "Expert" Role**  
(week 1:2; Leahy 2008:262)

---

In order to facilitate a good working relationship within dyads, it appears that students avoided being seen as too dominant or authoritative: They occasionally "toned down" their comments by using a vague language with the purpose of "softening" their statements (McCarthy 2006:202), presumably in order to not alienate their partners. This behaviour was particularly striking with one student who often acted in the expert role for L2, but tried to deliver his advice regarding L2-use in a "toned down" manner.

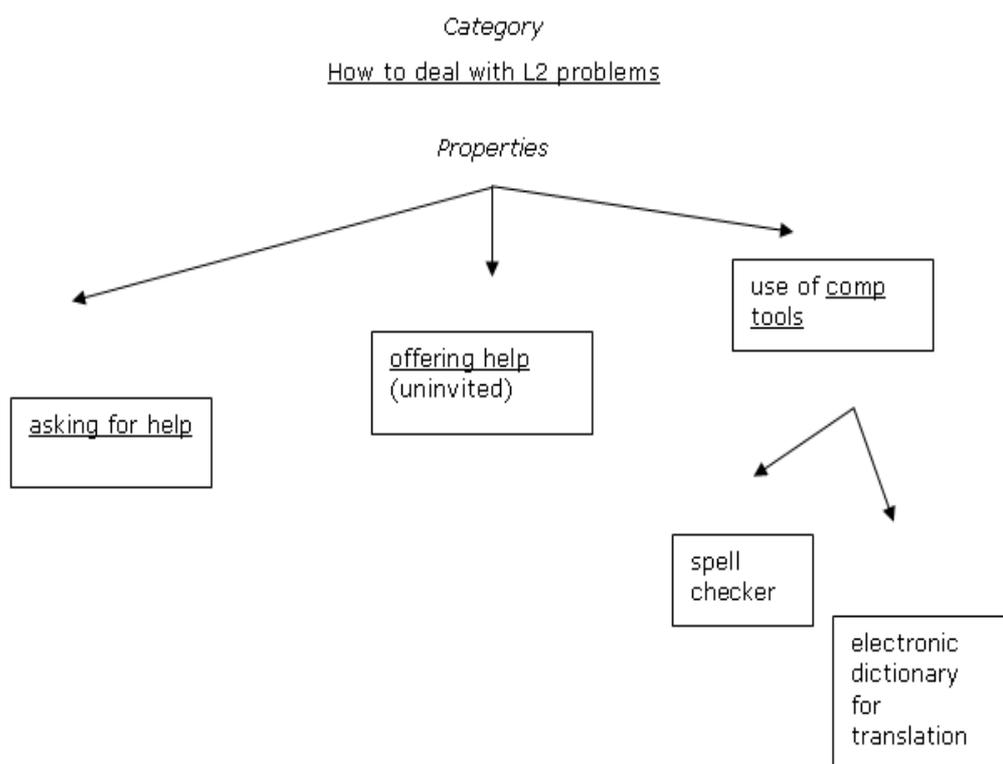
The following shall serve as an example.

<b>Dialogue 1:1:</b> Example of “toning down” in order to facilitate a good working relationship (the dialogue in German was published in Leahy 2008:264; the text in square brackets represents the translation into English)	
text sample	movement on screen (student 1), written outcome
<p>Example 1:</p> <p>Student 1: In den Kneipenmarkt [in the pub market]</p> <p>Student 2: Dem – vielleicht [the (dative) – perhaps]</p> <p>Student 1: Dem, den [the (dative), the (accusative)]</p> <p>Student 2: dem Dativ, im , im [the, dative; im: (dative for in)] (student 1 script, we 1, p. 3)</p>	<p>in [in]</p> <p>dem [the; in dative case]</p> <p>(Student 1 deletes:) edn im</p>
<p>Example 2:</p> <p>Student 1: Was typisch Kunde [what typical customer]</p> <p>Student 2: Ja. Eine Profil, Profil [yes. A profile, profile]</p> <p>Student 1: Was ist ein typisch Kunde - vielleicht , für ein deutscher Trinker? [what is a typical customer, perhaps, for a German drinker] (student 1 script, week 1, p. 4)</p>	<p>Was ist ein typische [what is a typical] Kunde profil [customer profile]</p>

The category of “Facilitation of a good working relationship” showed only one property during the first week: that of toning down the statement.

The fourth category identified during week 1 encapsulated the students’ approach to language problems. Students either asked for help explicitly, if they were aware of a difficulty they could not solve on their own, or they made use of computer tools, for example, a spell checker or an electronic dictionary. Another common form of dealing with a language problem involved the L2 expert offering help without being asked for it. These three approaches (here: properties) characterized a type of focus on form and can be represented under the category of “How to deal with language problems” as shown in Figure 14. Student focus on form is a recurring phenomenon which may be present in different categories or rather properties, depending on the primary perspective taken. The category “How to deal with language problems” highlights methods to overcome specific problems, here in relation to L2. The category “Focus on form” is less of a method trying to remedy a problem, rather it indicates directedness towards the particular problem

which is evident and identified in the associated properties. Below, the category “How to deal with language problems” includes a focus on form, for example, as represented in the properties ‘use of spell checker’ or ‘use of electronic dictionary’. As part of the answer to this third research question, the category “Focus on form” occurs during weeks 2, 3 and 4 and its associated properties will be named and discussed. However, details i.e., specific phenomena relating to SLA have already been discussed in relation to research question 2 and shall not be reiterated here.



**Figure 14 Dealing With L2 Problems**

(week 1:3; first published in Leahy 2008:264, slightly altered above)

The task brief for week 2 asked students to evaluate the information already gathered and to begin the development of a critical presentation of the group’s results. The first embedded case (hindrance of project development) shows why the groups were behind schedule and still needed to gather information during week 2. The delay had an impact on the categories which emerged during week 2 of this particular project.

#### 5.3.4.2 Categories gained through application of GT – Week 2

During this week, students continued answering their research questions, conducted further Internet research, clarified queries between groups and collated their information with a view to developing an outline of a marketing strategy during the following week. The main task per session had an impact on the

students' activities and the way they interacted with their partners, other groups and the computer.

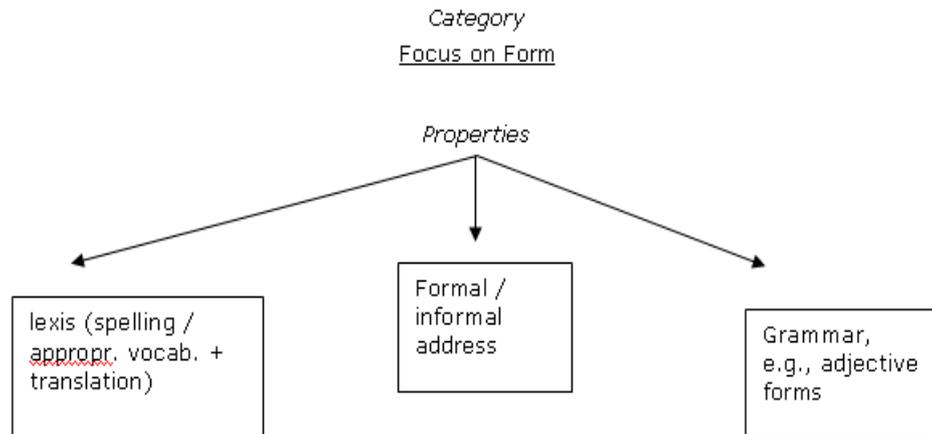
Some of the categories which had emerged previously, were evident during the second week too, namely "dealing with language problems" and the "expert role". The first of these two categories consisted of the same three properties, as in week 1 (see Figure 14). While addressing L2 difficulties the request for help could have been directed towards the partner or the tutor. The student asking for help was aware of their uncertainty regarding a specific form and sought clarification.

Uninvited offers for help were volunteered by the partner and the tutor. While the teacher moved from group to group, she commented on the students' L2 production. Typically, the teacher would comment on inaccurate structures in the students' written work as displayed on the computer screen, for example, asking the student to explain why they chose a certain structure or by offering a correction. Equally, comments were occasionally offered by the partner. The latter was particularly prevalent when a dyad worked with one computer. For example, the person not typing would concentrate on accuracy and offer spelling suggestions, or suggestions for case markers.

Viewed from the perspective of using L2 rather than the perspective of dealing with encountered difficulties and problems, the properties subsumed within the category of "dealing with L2 problems" could be addressed under the category heading "focus on form". Specific focus on form related to lexical items, for example, having encountered a term students were unsure about, or because a student was looking for vocabulary to express specific meaning. For example, group 4 came across a website which advertised a pub called 'Klo' ('loo' or toilet). Student 8 asked her partner for the meaning of that name. In such a situation they had the option to look up the term in an electronic dictionary or ask the partner or teacher for help, thereby overcoming the difficulty with approaches as named under the headings of those properties.

Another common manifestation of focus on form occurred when a student was uncertain about an accurate grammatical form.

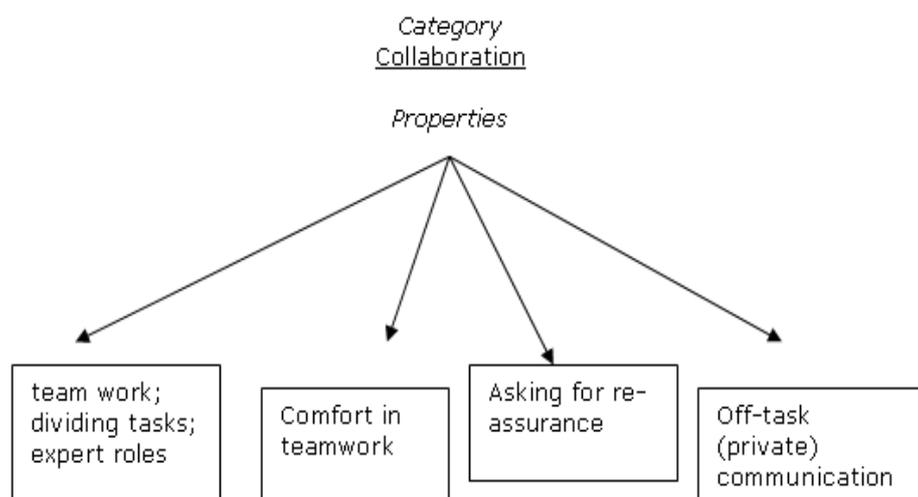
Three properties could be identified for the category focus on form (see Figure 15). These properties refer to the specific incidents of focus on form as encountered in the specific cohort during a specific moment in time, i.e., the second week of the core case study.



**Figure 15 Focus On Form**  
(week 2:1)

---

The category of expert role which had been previously identified for week 1 (Figure 13) can be demonstrated in week 2 as well. In particular, the properties of “L2 expert” and “IT expert” can be shown during this week. Characteristic of “experts” is inherent confidence which assists them in making decisions and claims about what they consider the accurate use of, in this case, L2 or technology, for example, to assist the partner in setting up the spell checker. For the purpose of this section, the property “L2 expert” does not include a value judgment, i.e., the expert’s expressed opinion may actually be incorrect. Within his dyad, student 2 of group 1 mainly acted as L2 expert, his suggestions regarding spelling, cases and vocabulary were often, but not always, correct. The frequent correct suggestions seemed to give his proposals some authority and eventually led to the inclusion of mistakes into the text production. This was discussed under RQ2. Furthermore, two additional new categories emerged during week 2, specifically collaboration (Figure 16) and working modes (Figure 17). Working on a collaborative task in the given setting of two partners per group encouraged team work and the emergence of expert roles.



**Figure 16 Collaboration**  
(week 2:2)

---

This was recognized by students, who spontaneously divided the work between themselves as reflected in the following example: Student 7 of group 4 declared which topic she wanted to write about (product competitors and niche market) while her partner was to write a mini report on culture for later dissemination to the other groups (dialogue week 2:1). In this incident, the term “culture” is misleading. Student 7 referred to the topic student 8 had been researching on the Internet, i.e., the amount of money Germans spent on eating out. By dividing the task and each of the partners producing a mini report, they shared the workload and saved time. Later, they merged the reports into one which was then sent as an attachment to the others.

<b>Dialogue week 2:1</b> - spontaneous division of work between partners (Week 2, student 7, 42:24)	
student 7	Ich schreibe mal was über Konkurrenz und Lücke. [I'll write something about competition and gap in the market.]
student 8	Ja – ja. [Yes – yes.]
student 7	Während du das machst, über Kultur. [While you are doing something on culture.]
Similar examples can be found at Week 2, student 2, 44:17; Week 2, student 1, 21:17.	

Collaborative work offered comfort to individuals who did not need to face difficulties on their own, but did so as a team, possibly with one of them being an expert, for example, a subject-specialist. This comfort was explicitly and implicitly

expressed. Both students in group 4 mentioned how reassured they felt that they had the other as support in dealing with the challenges the technical problems posed for them. Group 1 acknowledged implicitly the comfort provided by the collaboration with the partner: For example, when student 2 experienced technical problems, student 1 offered to work together with only her computer, which student 2 gladly accepted. Furthermore, collaboration within the dyad enabled the partners to ask each other for reassurance if a need arose. For example, student 8 believed she had understood the meaning of a particular sentence she had read as part of her research. She was able to give the translation, but she needed the reassurance to have understood the meaning of the verb "einschließen" correctly (dialogue week 2:2).

<b>Dialogue week 2:2</b> - asking for reassurance (Week 2, student 7, 21:29)	
S8	Was bedeutet "einschließen"? [What does that mean: „to include“?]
S7	ehhm - Wo denn? - hier [ehhm - Where? - here]
S8	Ja. Und die Region schließt Polen ein – also ‚include‘? [Yes. And the region includes Poland – therefore ‚include‘?]
S7	Ja – include [Yes - include ]

On another occasion, student 8 sought reassurance by asking her partner whether the text she had produced was correct (Week 2, student 7, 40:24).

Collaboration also facilitated private talk or rather talk with the partner which was not strictly directed towards the given task of the ERP, even though it may have been sparked off by it. For example, student 7 discovered details of a cheap pub in the same German city in which her boyfriend was doing his work placement. She announced to her partner that she wanted to pass this information to him. Information gained through the involvement in the ERP task therefore became elevated to information with real life relevance in their personal lives. Other examples of off-task communication included talk about forthcoming events and reflection about the impact of their work on others. For example, student 8's mind wandered to her afternoon assessment to be taken as part of her business course where she had to give a presentation on her year abroad experience. She commented on the fact, but did not elaborate. The distraction was brief. In another example of off-task communication (even though ERP-related) student 7 reflected on the impact of their contribution to the role-play when she expressed empathy for the tutor because the technical problems the group experienced held up their progress on the ERP. The delay seemed to undermine the project, which

could clearly lead to frustration, not only on her own group's part, but also the tutor's. Student 7 recognized this and commented on the effect this could have on the tutor<sup>52</sup>: "I believe the teacher will go crazy. Nothing works."

The same student also expressed empathy with the fellow students whenever her group could not email their summarized information to them since their technical problems prevented them from using the university email (dialogue week 2:3). In an attempt to overcome the problem she opened her private email account in order to send emails.

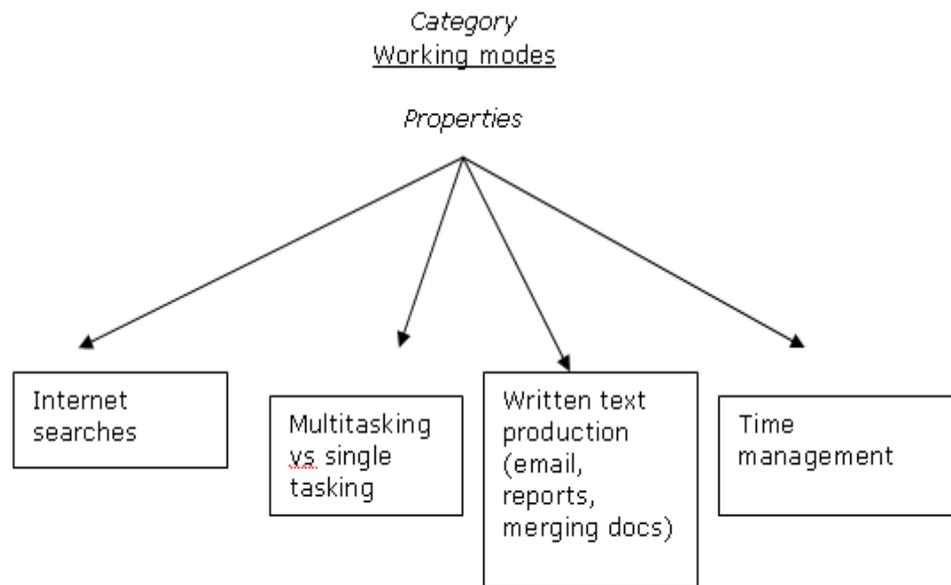
<b>Dialogue week 2:3</b> - empathy with others (Week 2, student 7, 1:02:32)		
1:02:19	S7	OK - was - oder wir schicken mit ... ich weiss nicht ob es möglich ist mit meinem Yahoo [ok - what - or we send it with ... I do not know whether it is possible with my Yahoo]
	S8	Ja [Yes]
1:02:32	S7	Adresse weil - sonst können wir nichts machen; das ist ja blöd für die anderen und auch für uns [...] [address, because - otherwise we cannot do anything; that is daft for the others and for us too ... ]

Group 4 only resorted to using their private email accounts once it had become clear that they could not use the university email at all. Opening the private email account also gave access to all private emails. However, none of the students in group 4 made much use of the access to private messages. Off-task communication could be caused by an incoming email, for example, a private email to student 7 which sparked a brief discussion on their siblings or an email from another lecturer to student 1 who replied with an off-task email, but still communicated simultaneously on-task with her partner, thereby multitasking. Off-task communication happened surprisingly rarely and did not take up much time. At the most, it consisted of a few exchanges before students' focus returned to their tasks at hand.

The category "working modes" (Figure 17) captures the approach the students took to solve the task of week 2. In general, they were still researching the Internet for relevant information in order to answer their individual questions.

---

<sup>52</sup> Week 2, student 7, 18:25 – student 7: "We should change computer. Ich glaube die Lehrerin wird, wird verrückt. [...] Nichts funktioniert."



**Figure 17 Working Modes**  
(week 2:3)

---

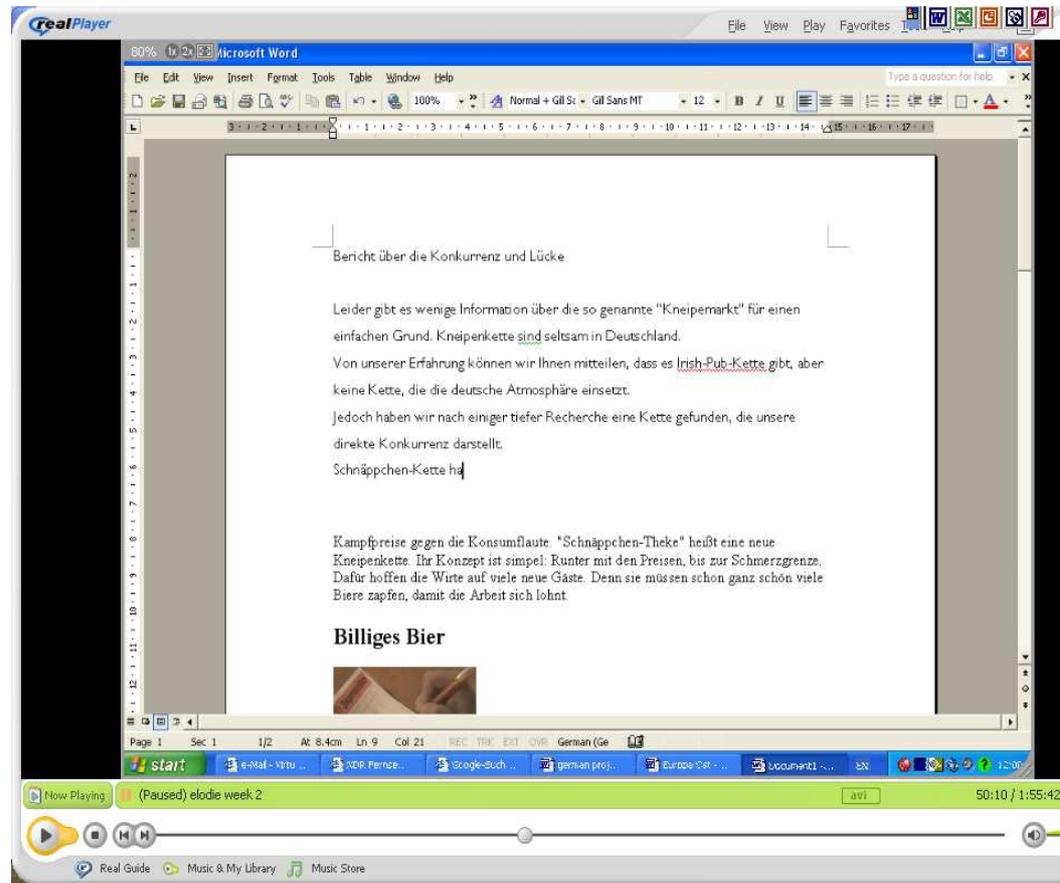
Internet searches included an element of development by chance, which required some discipline on the user's part if the students wanted to avoid getting lost in the web and wasting time. Once the German google website had been opened, search terms were entered and their results could be followed up. If terms had been misspelled, students had the option to follow the suggested spelling or to correct their entry with a new one. Following the suggested spelling included the possibility of leading the student in a different direction. If a search term produced a hit list, the student had a choice of which one to follow. This part of the task required gist reading in order to navigate through the vast amount of information and filtering the results to a manageable size where more in-depth reading could take place. Two very polarized approaches to the mode of working became apparent: On one side of the spectrum was a multi-task approach in which the student navigated quickly between windows, for example, reading passages in previously received documents while Internet sites loaded up in the background thereby maximizing time efficiency. Pre-requisites to this multi-task approach are computer literacy and being comfortable dealing with different task strands simultaneously. On the other side, a single-task approach was evident in which the student concentrated on one task only, for example, writing an email list while being completely unaware of other actions, for example, incoming emails.

The multi-task approach as referred to above represented good time management since time was not wasted by waiting, for example, for websites to load. Confident and purposeful switching between windows facilitated progress in the solving of the task.

Producing written text based on authentic material read is a challenge for most students. Reading the text online may add the additional problem of obscuring the source text while typing a word document, since one window covers the other. Student 7 overcame this shortcoming by pasting the primary text into the word document and writing her summary above (screenshot week 2, student 7, 50:10). Thereby, she had the information in front of her which she wanted to summarize in her report about the competition and niche market, having access to both texts simultaneously. She rephrased the information, but she kept one term without marking it as a quote: "bis zur Schmerzgrenze". That phrase caused her partner difficulty during the following week, when she accessed previous summaries in order to compile her presentation. During week 3 student 7 was ill and could not explain the term to student 8. Therefore, student 8 tried to translate the term with an online translator, but could not achieve a meaningful translation. As a result, she deleted the phrase "bis zur Schmerzgrenze" from her presentation. This occurrence was discussed in response to RQ2 (cf section 2 of this chapter).

Once student 7 had extracted the information she needed from her source text, she deleted the latter, keeping only her summary.

Student 7 made an effort to create a meaningful text in response to the requirements attached to her role, summarising information from the Internet and sending her mini-report as an attachment to group 1. The accompanying email carried an explanatory text why it took them some time to respond and referred explicitly to the content of the report, i.e. the competition and the amount Germans spent on food and drink outside the home. The email is framed by greetings in form of addressing the recipients politely and ending the communication in a pleasant manner.



The text at the lower part of the window was copied and pasted from the Internet. It was in view and relevant information could be extracted and summarized from there. The text produced by student 7 can be seen in the upper part of the screen. The pasted text from the Internet was later deleted.

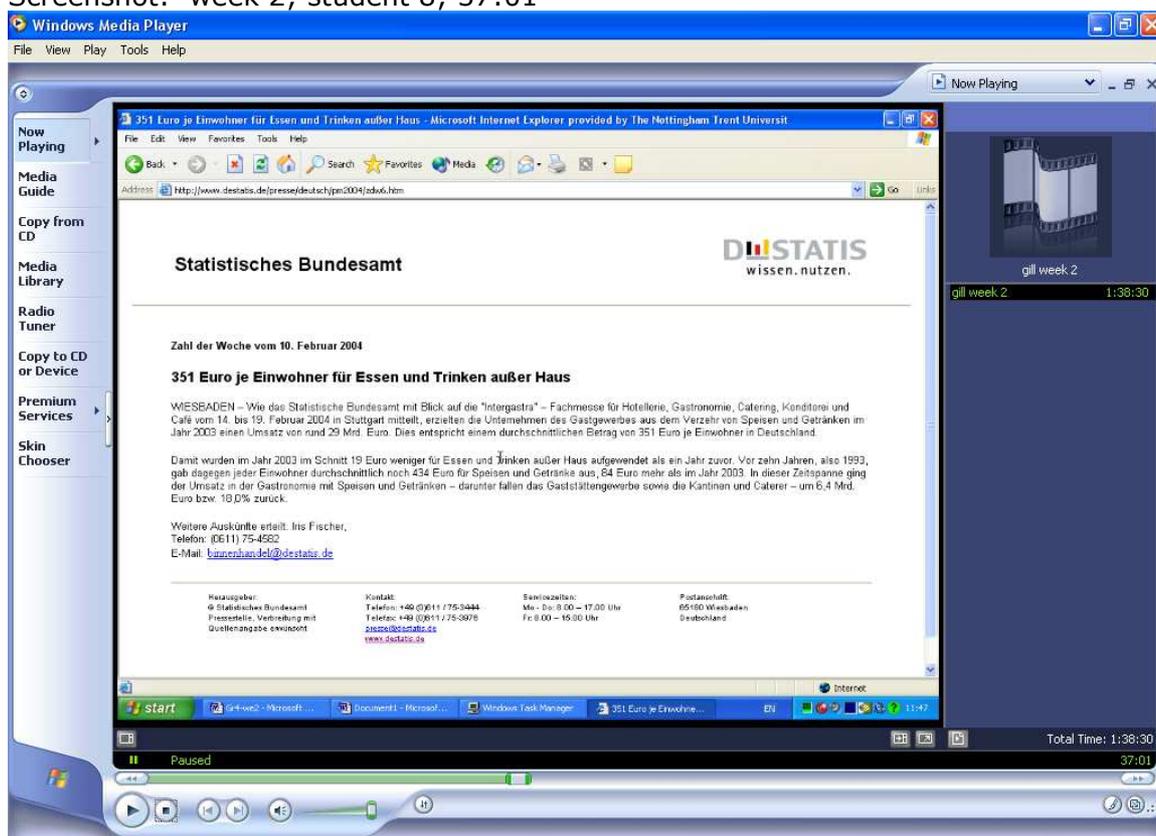
The examples of student 7's composition of her email and mini-report reflect a traditional approach to text production: linear text summary and explanatory email following conventions of politeness. Her text production and reply to emails stands in sharp contrast to that of student 1. The ICT environment can support more traditional communication approaches as outlined above, but, as will be discussed later, can also support very short responses as given by student 1, which would be unthinkable in traditional forms of communication.

Student 7 paid close attention to incoming emails. Once an alert of a new email arrival appeared on her screen, she checked the content of the message and acted upon it, if appropriate. Such incoming emails could therefore cause an interruption to the previously discussed linear approach to the task fulfillment and lead to a distraction of varying length of time. In such cases, the working mode changed from linear to associative, with the student's attention hopping to different

areas determined or initiated by external factors, for example, here: incoming emails.

Student 7's partner student 8 applied a different method. During approximately 8½ minutes she created her mini report, based on information provided by the Statistische Bundesamt (screenshot week 2; student 8; 37:01).

Screenshot: week 2; student 8; 37:01



Nine words and one figure were copied and pasted verbatim: „351 Euro je Einwohner für Essen und Trinken außer Haus“<sup>53</sup>. The rest of her created text represented free composition. Her final composed text consisted of 50 words (see Figure 18, left column). In the process of text production, she wrote considerably more words, but deleted several again. Student 8 did not send her mini report to her partner student 7 immediately, because she got involved in other tasks and was distracted.

The following represents the steps student 8 took during the 8½ minutes in which she summarised the text on the amount of money Germans spent on food and drink outside the home. Inevitably, some reference to L2 issues needs to be made here in order to describe the student behaviour in producing written text.

<sup>53</sup> Per citizen, 351 Euros for food and drink outside the home.

<b>Steps in text production</b> , summary of Internet information by student 8 Week 2, student 8, 34:44 – 43:17 (see Figure 18, left column)		
	Description of student 8's actions, number of steps	Composing draft text; English translation of the drafted + edited text can be found at the end of Figure 18.
34:27	Opened relevant website: „351 Euro je Einwohner für Essen und Trinken außer Haus“	
34:44	opened word doc; switched back to Internet site and read, followed with cursor along the text lines	
35:39	copied and pasted headline from website (1)	„351 Euro je Einwohner für Essen und Trinken außer Haus“
	changed text from headline to ordinary text (2) -copied URL and pasted it (3) into word doc	351 Euro je Einwohner für Essen und Trinken außer Haus URL:www.destatis.de/presse/deutsch/...
	inserted return between text line and pasted URL opened bracket+ typed (Statistisches Bundesamt 2005) (4)	(Statistisches Bundesamt 2005)
36:16	corrected to (5): 2004	2004
	switched to source text + read	
37:22	asked partner whether she understood text correctly	
38:28 39:22 39:35	returned to word doc. + (6) typed brief hesitation: das with 1 s (article) or dass with 2 s (conjunction) + self-corrected	Der Bericht behandelt das Geld die Leute fuer Essen und Trinken verfuegbar haben. Es beschreibt dass <del>jetzt gibt</del> heute gibt es weniger Geld als vorher. 351 Euro je Einwohner für Essen und Trinken außer Haus
39:42	inserts: verdienen Leute deletes: <del>gibt es</del> inserts: fullstop	Der Bericht behandelt das Geld die Leute fuer Essen und Trinken verfuegbar haben. Es beschreibt dass heute verdienen Leute <del>gibt es</del> weniger Geld als vorher. 351 Euro je Einwohner für Essen und Trinken außer Haus.
39:53 40:07	Composes and inserts text (7) Inserts:	Der Bericht behandelt das Geld die Leute fuer Essen und Trinken verfuegbar haben. Es beschreibt dass heute verdienen Leute weniger Geld als vorher. In *2004 <del>hatten</del> gab es 351 Euro je Einwohner für Essen und Trinken außer Haus.
	Short discussion about information student 7 found on Internet site	
40:58 41:40	-asked partner whether her composed text was correct.	Der Bericht behandelt das Geld die Leute fuer Essen und Trinken

	-first sentence = fine -2 <sup>nd</sup> sentence: <i>student 7</i> corrected: not verdienen (she translated into English = to earn) but ausgeben (to spend) <i>Student 8</i> (8) deleted verdienen and replaces it with ausgeben – deleted ausgeben and changes word order + put verb at the end of the sentence	verfuegbar haben. Es beschreibt dass heute verdienen Leute weniger Geld als vorher. In 2004 gab es 351 Euro je Einwohner für Essen und Trinken außer Haus. verdienen ausgeben ausgeben
41:35		Der Bericht behandelt das Geld die Leute fuer Essen und Trinken verfuegbar haben. Es beschreibt dass heute Leute weniger Geld als vorher ausgeben. In *2004 gab es 351 Euro je Einwohner für Essen und Trinken außer Haus.
41:46	inserted return and typed above previous text (9):	Konkurrenz in Deutschen neuen Laender
	Inserted (10)	Konkurrenz <u>in Kneipen markt</u> in Deutschen neuen Laender
42:20	corrected to (11)	Kneipen Markt
42:28	saved doc to her German folder (under my docs)	
42:38	inserted (12)	den
42:44	she asked tutor: Ist es in <u>den</u> deutschen Laender? [student-initiated focus on form]	
42:56	inserted -n (12) to	Laendern
43:17	minimized doc	
1:11:36	sent it per email attachment to <i>student 7</i> - In the meantime (between 43:17 and 1:11:36), prompted by the tutor, she was distracted with work on a map which she had copied from the Internet and sent to all. Particularly time-consuming and delaying was the fact that she could not send emails. TS arrived and tried to help, but could not. In the end she sent from her Yahoo account.	

TS = technical support; \*According to the website, the figure of 351 Euro refers to 2003 and not 2004.

The student started with copying and pasting the headline from the Internet site, followed by copying and pasting the URL and typing the name of the source agency. She then read the source text again. Interestingly, she followed the text she read with the cursor, thereby mirroring children's reading behaviour when they follow the text they read with their index finger. Before she proceeded to compose her

summarising text, she sought reassurance from her partner as to whether she had understood the source text correctly. Once student 7 had confirmed the main points of the source text, student 8 created her summary as free text production. She did not switch back to the source text. After the first five lines had been written, she asked her partner whether her summary was correct. Student 7 pointed out to her that she had used a wrong verb: According to the source text, Germans did not earn (*verdienen*) less than the previous year, but they spent less on food and drink. Student 8 replaced the verb '*verdienen*' (example 1 below) with '*ausgeben*' (example 2 below), and quickly realised herself that the word order had to be changed.

Example 1: Es beschreibt dass heute verdienen Leute weniger Geld als vorher.

Example 2: Es beschreibt dass heute ausgeben Leute weniger Geld als vorher.

The conjunction '*dass*' required the verb to be positioned at the end of the sentence. While in the first case the position of the verb could have passed as an unfortunate sentence structure, in the second it could not. In spoken German, colloquial variations occur which ignore the rule to send the verb to the end of the clause preceded by conjunctions, for example, '*dass*' and '*weil*'. Intonation may make it possible to use the incorrect word order and let it pass as a colloquial version. In written German, this would be more problematical. However, '*ausgeben*' is a separable verb. If the second case intended to apply the same colloquial use, the verb would have had to be separated into '*Es beschreibt dass heute geben Leute weniger Geld als vorher aus*, instead of '*Es beschreibt dass heute ausgeben Leute weniger Geld als vorher.*' This latter sentence would not have been passed even by sympathetic native speakers. Student 8 realises the word order error and self-corrected to

Es beschreibt \*dass heute Leute weniger Geld als vorher ausgeben.

This represents a grammatically correct sentence, even though there is still a punctuation error: The conjunction '*dass*' introduces a subsidiary clause and must be preceded by a comma, but student 8 failed to insert one.

Student 8 eventually emailed her report to student 7 who then formatted and edited it. Student 7 made several, but only minor and superficial changes to student 8's text when she integrated it into an attachment containing both students' work. The most substantial change she made concerned the headline (see Figure 18).

<p>Week 2 Text as composed by student 8 in we 2</p>	<p>Changes</p>	<p>Final text was sent as part of attachment from student 7 to student 2: Gruppe 4 ("Bericht über die Konkurrenz und Lücke"); as sent in we, 2 12:31; for Engl. translation please see below</p>
<p><i>Konkurrenz in Kneipen Markt in den Deutschen neuen Laendern</i></p> <p><i>Der Bericht behandelt das Geld die Leute fuer Essen und Trinken verfuegbar haben.</i></p> <p>Es beschreibt dass heute Leute weniger Geld als vorher ausgeben.</p> <p><i>In 2004 gab es 351 Euro je Einwohner fuer Essen und Trinken außer Haus.</i></p> <p>(Statistisches Bundesamt 2004)</p> <p>URL: <a href="http://www.destatis.de/presse/deutsch/...">www.destatis.de/presse/deutsch/...</a></p>	<p>(new text)</p>	<p><b>Bericht über Geldausgabe in 2003 (Statistisches Bundesamt 2004)</b></p> <p>Hier finden Sie die Link</p> <p><a href="http://www.destatis.de/presse/deutsch/pm2004/zdw6.htm">http://www.destatis.de/presse/deutsch/pm2004/zdw6.htm</a></p> <p>Der Bericht behandelt das Geld die Leute für Essen und Trinken verfügbar haben.</p> <p>Es beschreibt dass heute Leute weniger Geld als vorher ausgeben.</p> <p>In 2004 gab es 351 Euro je Einwohner für Essen und Trinken außer Haus</p>
		<p>Student 7 changed text to this font: Gill Sans MT</p>

**Figure 18 Text Editing**

Student 7 edited the text she had received from student 8, before sending it to group 1.

Translation of report sent by group 4 in week 2 (right hand column above): Report about money spent in 2003 (Federal Office of Statistics 2004). This is where you can find the link <http://www.destatis.de/presse/deutsch/pm2004/zdw6.htm>. The report deals with the amount of money which people have available for food and drink. It describes that people spend less money nowadays than they used to. In 2004 there was 351 Euro per citizen for food and drink outside the home. [The English translation of the German text strives to maintain the character of the German text, i.e., the distinct sound of non-native speaker text composition.]

Very different from student 7's and student 8's (group 4) approach to text production is that of student 2 (group 1) who wrote text slowly and concentrated on one task at a time. He ignored incoming emails while he was busy writing text or talking to his partner. His approach during the whole session was one of single-tasking.

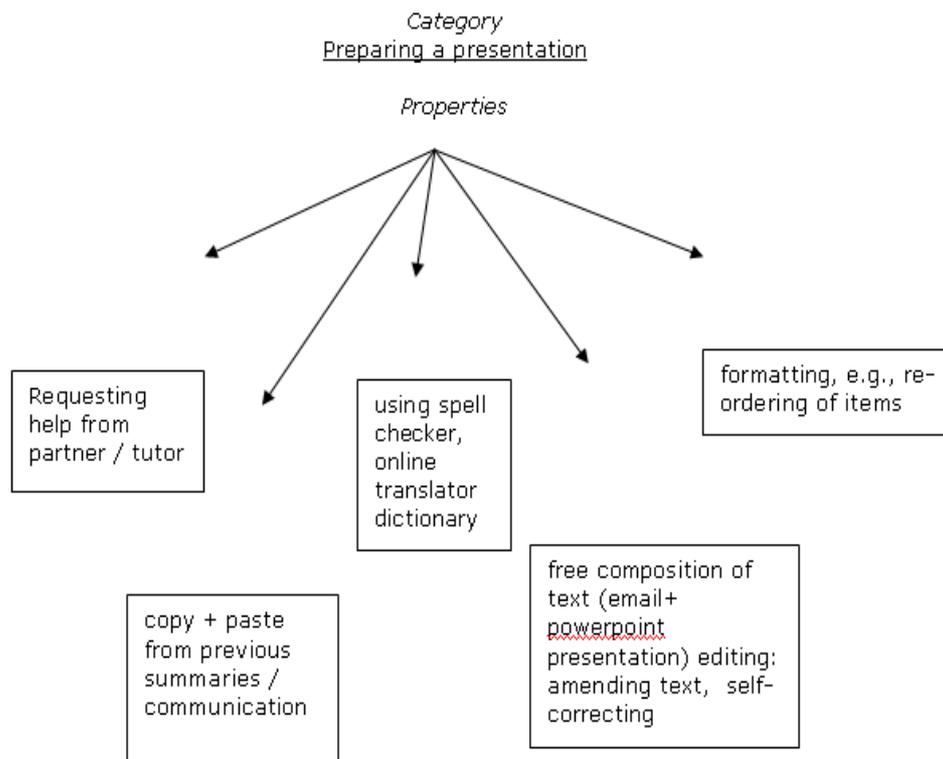
In summary, some students could multi-task, they talked to one another, they did Internet researches, composed text, read, wrote and sent emails. All four language skills were involved actively, students switched from one to the other, seemingly with ease. Higher order skills of evaluating material, synthesizing and summarizing it were employed. Furthermore, some students were computer-literate enough to switch between windows and applications while applying different language skills in the process of solving the task. If a student lacked computer literacy to navigate confidently, a single-task approach could facilitate progress<sup>54</sup>.

#### 5.3.4.3 Categories gained through application of GT – Week 3

Applying grounded theory to week 3, two new categories could be identified, namely "preparing a presentation" and "dealing with technology problems". Furthermore, the previously identified categories of "focus on form" (week 2) and of "role as expert" (week 1) with its associated properties of "expert" for L2, "expert" for socio-political questions, business "expert" and technology "expert" were evident in week 3 too. However, the concept of an "expert" helping a non-expert could only materialize when students worked in pairs. Since one member of group 4 was absent from class, the remaining student had to work on her own and an expert – non-expert relationship could not develop. The first of the new categories identified in week 3 concerned the preparation of the presentation which was delivered at the end of that session (Figure 19).

---

<sup>54</sup> See vignette 3: Navigation problems and lack of computer literacy.

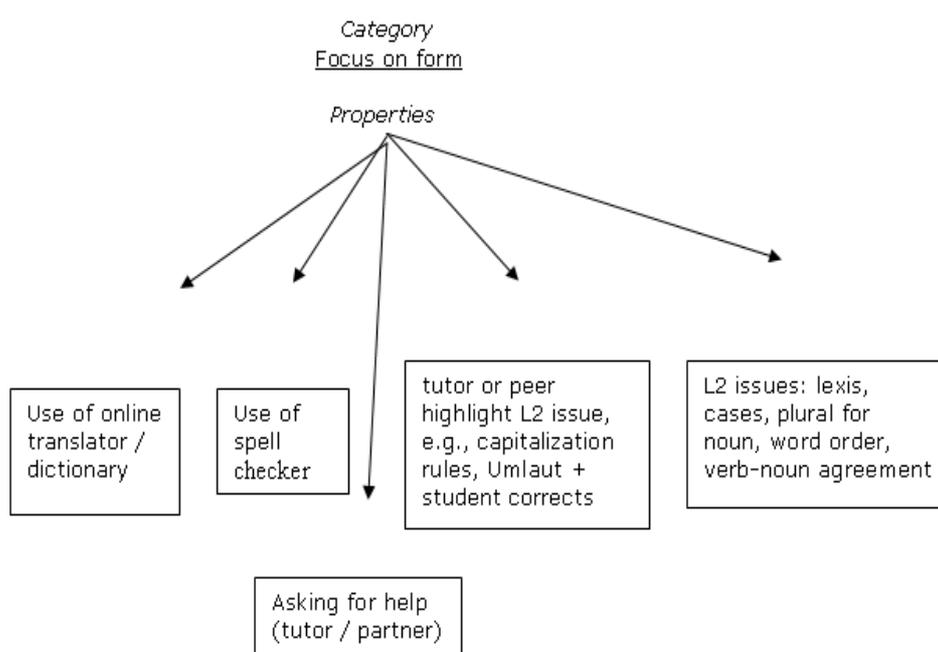


**Figure 19 Preparing A Presentation**  
(week 3:1)

---

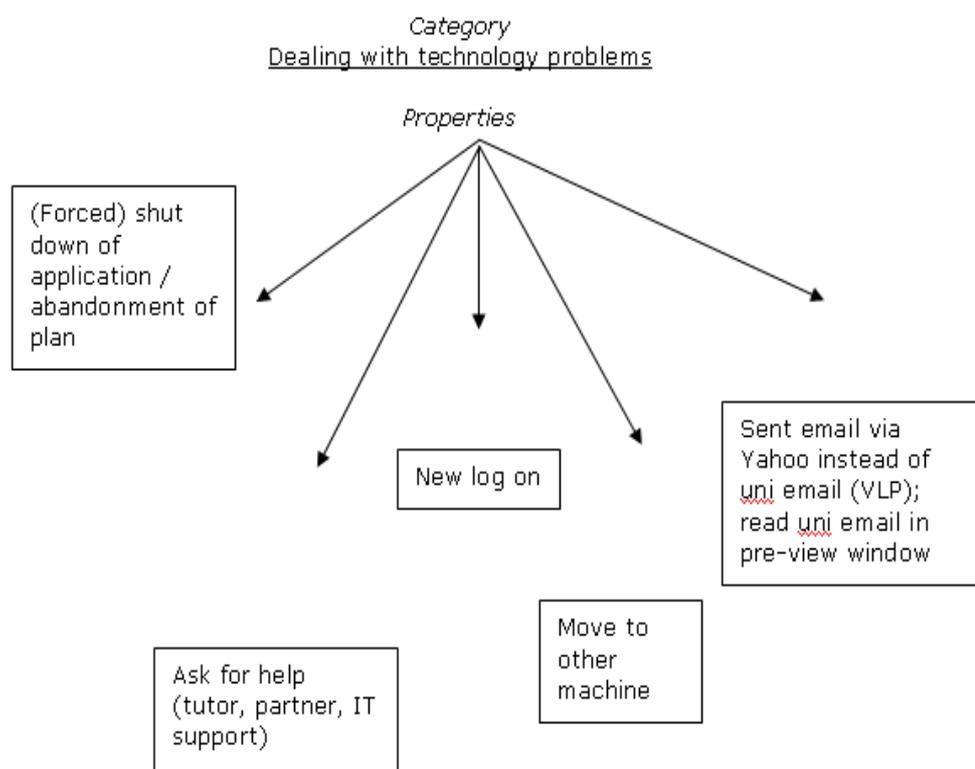
The preparation of this mini-talk and the actual presentation represented the main task of that week. Five properties could be identified for this category, as shown in Figure 19. While student 8 worked on her own, she requested help from the tutor when she needed information. Students 1 and 2 of group 1 both requested help from one another and also involved the tutor. All of these properties represent productive actions in the process of solving the task. They highlight how students consulted their previous work and carried the information forward to the presentation. Once text had been copied to the presentation slide, students amended it, for example, after the use of a spell checker, or changing the word order in order to match the pasted phrase to the grammatical needs on the presentation slide. For their presentations, students changed the formatting and possibly put the sequence of the items into a different order. While students prepared their presentations, “focus on form” occurred naturally, either as part of the creative process of writing, or for instance, prompted by the software used: Individual words may have been highlighted by red underlining. In general, the students were familiar with the spell checker and set the language to German in order to be able to make use of the correction tool. The correction tool was particularly extensively used for some of the German letters: *Umlaut*, i.e., ä, ö, ü, as well as ß. The teacher continuously moved from group to group and also pointed

out errors on screen, encouraging students to consider the way they phrased a sentence or spelled a word. Thus students were reminded of, for example, the capitalization rules in German. Students also asked for help directly, either their partner or the teacher, for example, for the translation of a term or whether a specific form was used correctly. Common L2 issues related to lexis, cases, plural forms of nouns, verb – noun agreements and word order. They frequently led to student hesitation, the use of the spell checker and attempts to make corrections. The category of focus on form with its related properties is represented in Figure 20. Technology issues in general were subsumed under the category “Dealing with technology problems” with the five broad properties as shown in Figure 21. Only two of those properties were productive in the process of completing the task, either asking for help or employing the private email account in order to be able to send email communication to others. However, the positive impact was limited since the problem took up a considerable amount of time which could have otherwise been used more productively. The other three properties carry an element which reflects the wastage of time: The student had to re-try gaining access to the applications needed; they either had to deal with a shut-down of a particular application, again log onto the machine or the VLP, or move to another machine altogether. This latter situation only arose for group 4. Even after several attempts by the technical support staff, the problems experienced by group 4 could not be solved.



**Figure 20 Focus On Form**  
(week 3:2; concept extended from week 2)

For group 1, problems with technology were experienced by one student only and these were due to his low level of computer literacy rather than technology itself. Through the coding process and the discovery of categories and properties, concepts can be made transparent. These concepts are not data as such, but are discovered through the data, in terms of Glaser and Strauss these conceptual categories and properties "have a life apart from the evidence that gave rise to them" (2006:36). The purpose of generation of categories and properties lies in their ability to generalize characteristics of concrete entities (Glaser and Strauss 2006) as well as yielding a "meaningful" picture (Glaser and Strauss 2006:38). It could be argued that occurrences which are unrepresentative for the ERP task which was based on collaborative work in dyads, do therefore not deserve to be considered as categories and properties in the context of the present study. However, technical problems do occur when students engage in technology-rich tasks. Furthermore, independent from the task concept which is based on partner work in dyads, student absence for reasons of, for example, illness do occur and the approach taken by the remaining student taking part is therefore relevant and may be informative for comparable situations. During this particular week, group 4 was only represented by student 8 since student 7 was ill.



**Figure 21 Dealing With Technology Problems**  
(week 3:3)

Additionally, for group 4 the session was again dominated by computer problems and could therefore not provide many insights into the student's approach to the ERP task in general, but was rather dominated by technology issues. These problems shall be sketched below; they are time-bound and relate to the specific VLE which was used at NTU at that time. However, issues borne out of the technology used can occur during any CALL task and their nature in this case shall therefore serve as an example for problems with technology and how they were overcome. Student 8 worked on two machines consecutively, with both computers having problems opening emails and attachments. As in previous weeks, she could read emails in the preview pane, but could not open them. When she tried to download attachments from the preview pane, often the VLP would shut down completely. Therefore, student 8 had to waste time having to log on repeatedly after a forced shut-down of the access to the VLP, but would still not necessarily gain access to the attachment. The VLP learning room gave her access to some folders, but she could not always open files. Crucially, she could not open the task sheet folder, and could therefore not reach the files to check on that week's task. This particular problem seemed to affect mainly group 4 and could not be resolved by the technical support team. In an attempt to avoid the affected computers, the particular students could not just move to any other machine during the session since the Camtasia software had only been uploaded to ten computers at a time, in accordance with the granted permission from TechSmith. The local technical support team seemed to think that the problem was inherent in NTU's VLE, but not a general network problem. Twenty-two minutes into the Camtasia recording, student 8 had to abandon the first computer and logged on to the second. After another nine minutes using the second computer, she still had not gained access to the task sheet for that week. Thirty-one minutes into the recorded session, student 8 asked the tutor for help when she was unclear about what she needed to do. The tutor had to bring her a paper version of the task sheet and highlighted the next steps student 8 had to take in preparation of that week's presentation. This wasted not only student time, but also tutor time which could have been used more productively helping with solving the task rather than explaining the task itself. Remarkably, student 8 focused on the task well, but her main concern for the initial period in class was dominated by overcoming problems with technology. While these problems were tackled collaboratively with her partner during weeks 1+2, student 8 had to face them on her own during week 3. During the previous week, she had twice<sup>55</sup> expressed to student 7 how pleased she was that student 7 was

---

<sup>55</sup> "Ich bin froh, dass du hier \*bin." [I am glad you are here.] (week 2, student 8, 8:55); "Aber du bist hier. Das ist gut." [But you are here. That's good.] (week 2, student 8, 19:03).

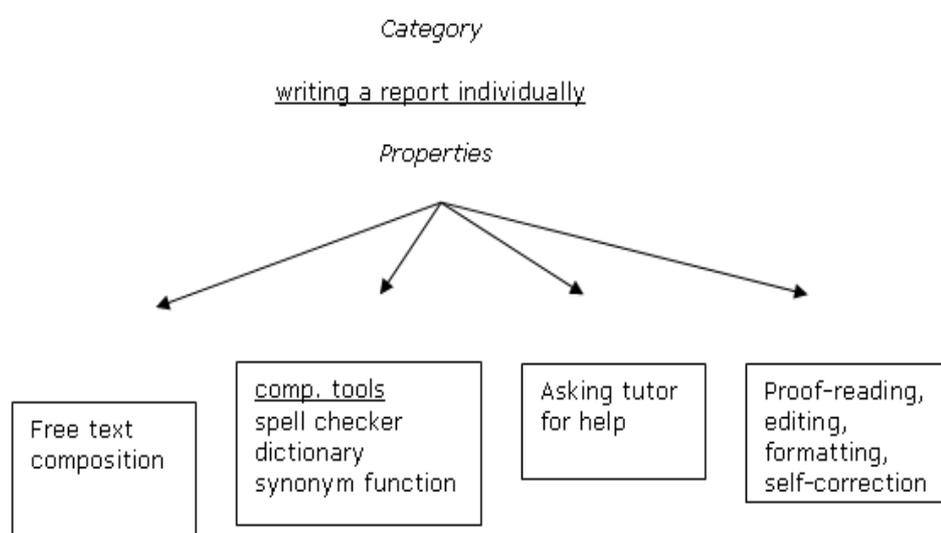
there solving the task and computer problems with her. However, even though she had to face problems on her own, she was able to complete her task for week 3. Group 1 formed a complete dyad during week 3. The two students worked individually on their own machines initially, but later worked from one machine only (13.5 minutes into the recording; we 3, Student 1, 13:33). While they worked with two computers, student 2 struggled navigating between different applications. In particular, he could not find a pre-prepared document which he had intended to distribute to all groups. In the end, he abandoned the original plan, i.e., the sending of a document as email attachment, since he could not find the place where he had saved it. Once they worked from one machine, the previously identified category of "expert" role became more prominent. Student 2 frequently took on the role of L2 "expert", observing his partner typing the text and making suggestions for spelling, lexical items or grammar. This behaviour as exhibited by student 1 and 2 may reflect gender stereotypes. The female student typed, the male student observed and made suggestions regarding L2 use. This division of labour allowed student 2 to continue the task as specialist for L2, correcting his partner, and thereby maintaining the high status of expert. This fact obscured the reason why they worked with one machine: Student 2's inadequacy of working in complex ICT settings in which he had navigation problems and lost oversight of material he had produced in advance of the class and could not retrieve when he needed it. The option to work with one computer instead of two facilitated to recover the collaborative task: The students continued talking to one another and produced written text together.

#### 5.3.4.4 Categories gained through application of GT - Week 4

During week 4, group 1 was only represented by student 2 since student 1 was absent from class. His report is his own individual report in accordance with the task brief. Unlike the oral presentation of week 3, which was envisaged to be developed in collaboration with the partner, this task emphasized a different skill and a different working mode. For group 1, one category with four properties could be identified. Student 2 composed his text freely; unlike group 4, he did not rely on copy-and-paste actions using previous week's work or other source texts, for example, from the Internet. He did not prepare the report in writing in advance at home, as he had done before when he wrote his document 'Europa Ost' between sessions one and two. Remarkably, he did not produce a plan or structure first, but did write from the top of his head. Once he asked the tutor for help, but otherwise seemed to be clear in his mind what he wanted to include in the report. The question concerned a sentence he himself called "ambitious". The sentence's

meaning was unclear and together with the tutor's support he re-phrased it, hereby also addressing a verb which had been incorrectly used throughout the project. Student 2 spoke of "einen Plan \*auswickeln", but meant entwickeln, i.e. to develop a plan. "Auswickeln" refers to unwrap or untuck and cannot be used in the context of development of a plan.

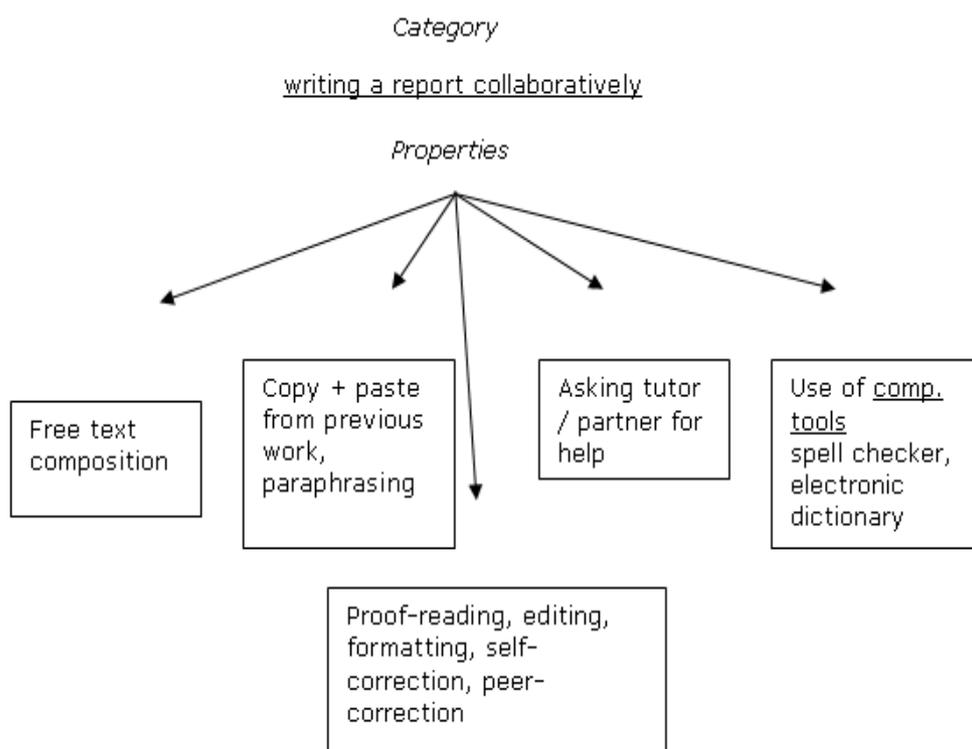
Student 2 focused on form, he made extensive use of the spell checker function, in particular for *Umlaut* and any words which were underlined with red when he typed them. He occasionally typed words carelessly, for example, with one letter missing. The software would pick this up immediately and show the term underlined. Student 2 checked the spelling by right-clicking and either accepted or rejected the alternative word offered. He used the electronic dictionary repeatedly, looking up random terms which did not belong to any singular lexical field. He sought translations when he needed them, for terms such as: weekly, researching, size, in spite of. He also used the function to check for synonyms for terms he had incorporated into his text. This was not as successful as the spell checker since he seemed to use the synonym function when he had already words underlined in red. They were therefore incorrectly spelled which meant that the software could not easily offer him alternative expressions. As second choice of action, he usually applied the spell checker function. During that week, student 2 seemed satisfied with the electronic dictionary of the University of Chemnitz which was linked to the module on the VLE. Previously, he had expressed his preference for another dictionary "leo" and had been prepared to spend valuable time looking for the dictionary itself, rather than looking up terms in the recommended dictionary.



**Figure 22 Individually Written Report**  
(week 4:1)

---

In between, student 2 edited and formatted his text, inserted words, deleted some and corrected others. Within approximately one hour he completed the task; student 2 wrote a report of 357 words. Group 4 only produced one report between two students, thereby deviating from the task. The final report can not really be seen as "individual" work, rather it was produced in collaboration between two students. The teacher had suggested that they write one report between them (Week 4, student 8, 7:29) with student 8 typing and student 7 taking an advisory role. The intervention had two reasons: Student 7 had been absent the previous week and student 8 had to brief her first on that week's outcome, the presentation. It seemed appropriate to ask them to work together to make catching-up easier for student 7. Secondly, student 7's absence had been caused by poor health, a nervous condition and the additional stress of having to write on her own could have been detrimental in her fragile state. Group 4 was the only group out of the five which was permitted to work together on one written report. Student interactions and behaviour during this week can be captured in the category: writing a report collaboratively (see Figure 23).



**Figure 23 Collaboratively Written Report**  
(week 4:2)

---

Five properties can be distinguished: The students started the report by copying and pasting from previous work, and intertwining it with free text production. They constantly proof-read and edited the work. Furthermore, student 8 was able to

correct some of her writing herself, while student 7 offered suggestions for improvements and change. On occasions, they discussed grammatical phenomena; Student 7 introduced some rules, for example, specific noun groups and their gender. Student 8 frequently used the spell checker and electronic dictionary. Focus on form was therefore evident and the text developed in true collaboration.

The previously identified properties, that of "L2 expert" and "focus on form", were very prominent during this week. Student 7 often initiated focus on form and advised student 8 on spelling, cases, past participle form, introduced rules for nouns and gender etc. Comparing the two categories (Figures 22 and 23), the differences between the approaches are twofold: The collaboratively written report reflects the interaction between the partners in peer corrections, peer tutoring on one hand and the seeking of help from the partner on the other. This reflects a two-directedness of the occurrence of expert roles: offering solutions / guidance on one hand (expert to no-expert) and requesting guidance on the other hand (non-expert to expert). Secondly, the group chose to compose text by firstly copying and pasting from previous work and then to paraphrase this, intertwined with free composition of text. Student 2's individual report was only based on free composition.

#### 5.3.5 Discussion of results gained with GT method

Glaser and Strauss (2006) refer to categories and properties as being concepts which were born out of data. Accordingly, the categories and properties discovered for the individual weeks can be summarised under different perspectives. Viewing the whole project rather than taking a weekly viewpoint, some categories occurred repeatedly and shall be discussed below in some depth. Other, less frequently occurring categories and properties can be subsumed under the perspectives of a) sub-task-inherent approaches and more generally b) working modes. Of course, none of these perspectives can be seen exclusively, there may be overlap. Sub-task-inherent approaches were different in different weeks, but were grounded in the particular weeks' given sub-tasks, for example, procedural discussions in week 1 or the written report in week 4. These task-inherent approaches tended to be related to language skills, for example speaking and writing skills. The emergence of these categories confirmed that the students were focused and generally stayed on course during the task<sup>56</sup>. Under the category of working mode, different properties can be subsumed, for example, Internet searches and written text production. Written text production is another example for overlap of different categories; it can also represent a sub-task-inherent approach, particularly for

---

<sup>56</sup> Cf. to Hegelheimer and Tower (2004) who had a similar result for students working with a CALL software programme.

week 4 which was dedicated to writing individual reports, but also in relation to composing emails or lists of questions. However, under the perspective of working mode, light can be cast on the decisions students took in order to produce written text in the computer environment: Did they use software tools, for example, spell checkers or Internet tools, for example, electronic dictionaries and translators? These tools can be viewed as affordances of the CALL environment.

#### 5.3.5.1 Affordances

The term affordance is attributed to Gibson (1979) and refers to objects in the real world which can be deployed to execute an "assertive will" (Colpaert 2004:46). In the words of van Lier, "an affordance is a property of neither the actor nor the object: it is the relationship between the two" (van Lier 2000:252) or phrased differently, affordances "are meaningful ways of relating to the environment through perception-in-action" (van Lier 2004:147). Kirschner, Strijbos and Kreijns elaborate that

the notion of an affordance refers to the 'perceived and actual fundamental properties of a thing that determine how the thing can possibly be used' (Norman 1988:9). Affordances are most clearly visible in everyday life. Some door handles, for example, look like they should be pulled. (Kirschner, Strijbos and Kreijns 2004:25-6)

Affordances as manifested in the computer environment refer to the tools or objects in the real world, which are available to the user to realise what they set out to do, to express their volition. The perspective of working modes can illuminate the affordances of the environment which were realised by the learners. The week-by-week application of GT methods brought to the fore the different individual realisations of them, in particular the use of a spell checker and to a slightly lesser degree that of electronic dictionaries. The working mode perspective also draws attention to the use of the Internet and the collaboration of the partners in a dyad as well as across dyads. The latter point was illustrated with specific examples in answer to research questions 1 and 2, emphasising the collaborative construction of content knowledge and the collaborative approach to solving L2 problems. Collaboration could manifest itself in different forms, including team work in which one person took a lead, possibly taking on an expert role. Other forms of team work led to the division of the task between the partners, thereby moving from collaborative phase with interaction between them to individual work followed by another interactive phase. The Internet searches were individual activities, choices made in the process could be very diverse: The search engine could be used to access information in several languages, mainly German and English, but also French. Once hit lists were generated, students could follow those and navigate with hyperlinks and back- and forward buttons or follow links. It is

easy to get lost in the Internet, but the four students observed in detail seemed to be able to keep their focus and not follow links which led them astray from the task. For one student, navigation problems were an issue, but the problems experienced were rooted in his lack of navigation skills between windows rather than navigating the Internet as such. As a manifestation of a working mode, Internet searches were used effectively.

Another interesting and unexpected finding in the context of working modes relates to the ability of some students to multitask. Student 1 and 7 in particular were especially fast and efficient navigating between windows, followed by student 8. On the other hand, student 2 preferred a single-task approach and could not navigate effectively between windows at all. Of the categories discovered, two occurred repeatedly: The category of "expert role" appeared each week. "Focus on form" was also evident every week, either as a category or a property. These two recurring concepts shall be discussed now.

#### 5.3.5.2 Expert role

The development of the expert role, which was identified for every week, is significant: Peer-tutoring has many advantages, from both perspectives, that of the expert and that of the partner receiving advice. As shown above, it appears that at least some students who took on the expert role within a dyad avoided appearing authoritative and made efforts to 'tone down' or soften (McCarthy 2006) their language and manners in order to keep the power relationship between the two partners on an amicable basis. The occurrence and level of "toning down" is likely to be influenced by cultural norms and can therefore be expected to differ in different cultures. The link between learner and knower, i.e., learner and "expert" could thereby remain democratic and did not elevate one learner considerably over the other. The expert role materialised spontaneously, motivated by the individual knowledge or expertise each learner brought to the role-play. The expert role was not created as part of the task design as in other studies<sup>57</sup>. For example, Lee (2008) created a CMC task which purposely paired advanced with intermediate learners in order to create opportunities for the advanced learners to provide "scaffolding" for the less proficient partner. In her project, the expert – novice partnership came into being through the task design and framework in which CMC took place. In the ERP, on the other hand, the expert role occurred spontaneously and can be characterised as being fluid and variable. Without explicit discussion within dyads, one partner was identified as expert, after they had displayed behaviour of the knower, they corrected the partner or knew how to receive

---

<sup>57</sup> The principle of expert – non-expert relationships is frequently applied in email projects between native speakers and non-native speakers (cf. Leahy 2001a).

information and then filled a gap which would have otherwise remained as a knowledge gap. Spontaneously developing expert roles were dependent on consent of one partner agreeing to the other being the expert. Without that (most likely: non-verbal) consent, one partner could not be elevated to expert over the other and thereby both were implicated in creating a type of hierarchy. Without consent of both partners, the 'expert's' suggestions would not have been accepted without a challenge. It appears therefore that the students themselves provided mechanisms to facilitate the (in principle) hierarchical structure of expert and more subordinate role. During week 1 this was exemplified in the category of "working relationship".

In week 2, the property of "comfort in team work" as part of the category "collaboration" also included an element of submitting to an expert: For example, student 8 repeatedly announced that she was pleased to work with student 7. She happily and willingly accepted the expertise of student 7 which was mainly substantiated in her expert knowledge of L2. However, working with a partner who displayed expertise in one area could lead to the feeling of comfort in other areas, for example, when having to deal with technical problems; hence student 8's announcement that she was pleased not to have to face difficulties such as technical problems, on her own. However, the student elevated to the expert role was not necessarily an expert after all, at least not consistently. The status of expert had developed through previous incidents in which one partner had repeatedly exhibited a higher level of knowledge than the other. As shown in the section in reply to RQ2, the partner who became L2 "expert" had been accepted as such in non-verbal agreement. In the examples given, the expert role was embedded in language expertise which exemplifies the fact that the categories and properties gained through GT overlap with one another: here, the expert role refers to focus on form (rather than, for example, expertise in business issues or technology use). The expert had gained an unquestioned authority which could lead to acquisition of terms and structures which were in fact incorrect. From the perspective of SLA, herein lies a danger which highlights the need of the ERP being monitored by the tutor. The tutor's function is not only that of the initial designer of the task in response to students' needs, and facilitator of the task being fulfilled, but also of the real expert, for example, in L2 questions who is available to act as a corrective entity for the students, and direct focus on form if appropriate (Ellis, Basturkmen and Loewen 2002). In this context, the tutor does not determine on which L2 forms the class should focus, as would be the case in a typical task-based learning cycle (Willis 2004). Instead, (as discussed in section 2 of this chapter) focus on form is borne out of, for example, the student's struggle with or uncertainty about a form which leads to hesitation in L2 output, avoidance of the

form or seeking help, either from the partner, the tutor, a reference source and/or electronic tools.

These findings suggest that for this level of L2 proficiency, ERPs as form of CALL may be better performed in class (for which it was designed) than, for example, as a distance learning task. The ERP as in-class CALL activity facilitates interaction between partners and thereby creates L2 learning opportunities. More advanced students in L2 proficiency may be capable of leading these tasks to successful outcomes on their own, including the achievement of a high rate of accuracy in L2. However, in the case of this study, the presence of the tutor was helpful for the students engaged in this ERP. Future research into ERPs could be targeted more specifically towards monitoring the student expert's behaviour and the facilitation of focus on form.

#### 5.3.5.3 Focus on form and agency

The second important category "Focus on form" was evident in every one of the four weeks. Specific examples of focus on form have already been discussed in response to the second research question. In SLA theory, focus on form is seen as an important part of L2 learning (as elaborated in chapter 2). One of Skehan's cautious comments on CALL and the use of the Internet directed attention to the danger of a) students being overwhelmed by the task's demands on content processing and thereby b) leaving no capacity for focus on form. Secondly, the pure immersion in L2 without tailoring the input to comprehensible input for the specific learner group may add to the danger of cognitive overload. SLA theory emphasises the need for forms to become salient to the learner, for input to be stretching and slightly beyond the students' current level of interlanguage, but still within the student's zone of proximal development (Byrnes 2006; Lantolf 2000, 2006, 2008; Schinke-Llano 1993; Swain 2006; Vygotsky 1978). In an unstructured approach in which learners are using the Internet, this may be difficult; hence Skehan's suggestion (2003) of tutor directed focus on form. The results of the ERP show, nevertheless, that students did focus on form when they were asked to produce output. Focus on form could be accounted for in all weeks, either as a category (weeks 2-4), or at least a property. Focus on form occurred spontaneously when students concentrated on output which was to be shared with others, either in an outgoing email or a presentation or a written report. This finding supports the notion expressed in Warschauer (2000b) that the principal objective of multimedia and Internet use for L2 learning is agency, rather than the previous principal objectives of former stages in his pedagogical synoptic view, those of fluency and accuracy. A striving for accuracy for its own sake appears to be less motivating than accuracy which is a tool to express the student's agency.

In Warschauer's model of pedagogical trends of the last decades (Warschauer 2000b) the term agency referred to "the power to construct a representation of reality, a writing of history" (Kramsch, A'Ness & Lam 2000:97). Van Lier (2008:163) described agency in general terms and with reference to Ahern (2001:112) "as 'the socioculturally mediated capacity to act'" or in more specific terms (and here referring to Duranti 2004:453) as including "three basic properties: 1) control over one's own behavior; 2) producing actions that affect other entities as well as self; 3) producing actions that are the object of evaluation." Van Lier (2008) extended the concept of the individual's agency to that of a group of two or more people in which he attributed three "core features" to agency:

- 1) Agency involves initiative or self-regulation by the learner (or group)
- 2) Agency is interdependent, that is, it mediates and is mediated by the sociocultural context
- 3) Agency includes an awareness of the responsibility for one's own actions vis-à-vis the environment, including affected others. (van Lier 2008:172)

With this extended understanding of agency and language learning, van Lier (2008) brought forward the argument that agency is closely related to (or may even be seen as a collective term for) motivation, autonomy, intentionality, learner's volition etc. The learner's volition is closely related to the notion of affordances, as discussed above. Learner volition can guide the student to appropriate the affordances of the learning environment to their purposes, and thereby aid students to exercise their agency. Analysing extracts of student dialogues with a view of locating agency, van Lier found similar descriptors to this thesis' categories and properties, for example, "learners voluntarily ask questions" (ibid:169, cf. Table 11). Van Lier (2008) specifically researched agency in the classroom (the title of the chapter), and, based on six samples of student interaction from different classrooms, he identified six forms of manifestation of agency. This thesis under consideration discovered similar manifestations of agency through the different process of application of GT methods to the last ERP. The answers to open questions such as 'What is going on?' inform the categories and properties discovered. GT as applied in this thesis does not include hypotheses which were tested and did not look out specifically for evidence of agency (which would be a gross misrepresentation and a wrong application of GT methods). From the perspective of agency as defined by van Lier (2008:172), the collaborative task of the ERP gives students the opportunity to exercise their agency to a large degree. Students have the opportunity to take initiative and self-regulate their actions by making use of the learning environment's affordances. Furthermore, they self-regulate their actions by determining the content of their marketing strategy and the direction of the strategy. These actions are mediated by their sociocultural and also subject-specific contexts, and are embedded in the students' awareness that

these actions may affect others (e.g., student 7 expressed concern about the impact of their technical problems on others, students and tutor alike).

Van Lier (2008: 169-170)	RQ3 of this thesis: embedded case study and GT approach to investigation of student behaviour in the CALL environment
Learners are unresponsive or minimally responsive	Exercising a "negative" version of agency by purposely deciding against carrying out instructions given by the teacher (cf., embedded case study 1, below)
Learners carrying out instructions given by the teacher	Written text production, preparing presentations, writing a report individually etc., students were generally focused on task
Learners volunteer answers to teacher's questions	This situation did not really arise since formal teaching is not a part of the ERP. Communication between learner and teacher took more the form of a dialogue, rather than offering the opportunity to volunteer answers to teacher's questions within the whole class
Learners voluntarily ask questions	e.g., asking for reassurance (Figure 16), asking for help (Figure 14; Figure 19; Figure 20)
Learners volunteer to assist or instruct other learners and create a collaborative agency event	Spontaneous development of the expert role (e.g., Figure 13)
Learners voluntarily enter into a debate with one another and create a collaborative agency event	e.g., team work and dividing tasks (Figure 16)

The awareness of impact of their actions on others, seems to motivate a focus on accuracy (cf Warschauer 1999). L2 output directed not just at a fellow student or the teacher, but also towards the whole class or even an audience outside the classroom, can focus the student efforts on form which is as free from errors as possible. The discussions around, for example, spelling, cases, and lexis do point towards the awareness and the students' own volition to produce a text as accurate as possible. All three core features of agency, according to van Lier (2008), could therefore be evidenced in the ERP. By using the environment's affordances (Gibson 1979; Kirschner, Strijbos and Kreijns 2004; van Lier 2000, 2004) the students could appropriate the tools, including language (Bakhtin 1981; Lund 2003), and thereby they could exercise their agency (van Lier 2008). The ERP as a

manifestation of open task CALL therefore appears to be an effective approach to computer-assisted language learning.

Above, the discovered categories and properties were firstly introduced on a weekly basis and thereafter discussed holistically with reference to current discussions regarding pedagogy and SLA theory, for example, with particular reference to the affordances of the computer environment and learners' expression of their agency.

The following will turn to mini case stories which emerged through the process of data analysis and application of GT. Their significance could not be expressed within the methodological concentration of categories and properties and shall be introduced in form of embedded case stories below.

### 5.3.6 Embedded case stories

One advantage of exploratory (Yin 2009) or intrinsic (Stake 2005) case studies lies in the opportunity to discover incidents which represent "thick descriptions" (Stake 2005:450) of what is going on. This kind of case study aims for a better understanding "of what is important about that case in its own world", "the case's own issues, contexts and interpretations" (ibid). Events which are considered important to the case study do not necessarily need to be representative or typical for it. They can also be "infrequent, unrepresentative but critical incidents or events" (Cohen, Manion and Morrison 2008:257). Case studies facilitate the research focus on "[s]ignificance rather than frequency" and thereby can give an important "insight into the real dynamics of situations and people" (Cohen, Manion and Morrison, 2008:258). Through the process of working on the case, i.e., data analysis and the coding process, "cases within the case" may emerge, in other words: "embedded cases or mini-cases" (Stake 2005:451) which Stake previously called vignettes (1995; also Yin 2009) and which reflect significant incidents in order to understand the real dynamics of the ERP under discussion.

The following areas of interest emerged in form of such embedded cases.

- (1) Hindrance of project development during week 1 (student 1)
- (2) Change in behaviour during week 2 (student 1)
- (3) Navigation problems and lack of computer literacy (student 2)
- (4) Navigation issues – overcoming technical obstacles (students 7+8)
- (5) Text production in technology-rich environment (student 7)

These embedded or mini-cases represent thick descriptions in Stake's sense and have the potential to aid a deeper understanding of student behaviour and interactional patterns in the computer room while engaged in the ERP. These

embedded or mini-cases do not make the claim to be representative, but are purely intended to illuminate student actions.

The identified mini-cases shall be reported on now.

#### 5.3.6.1 Hindrance of project development during week 1

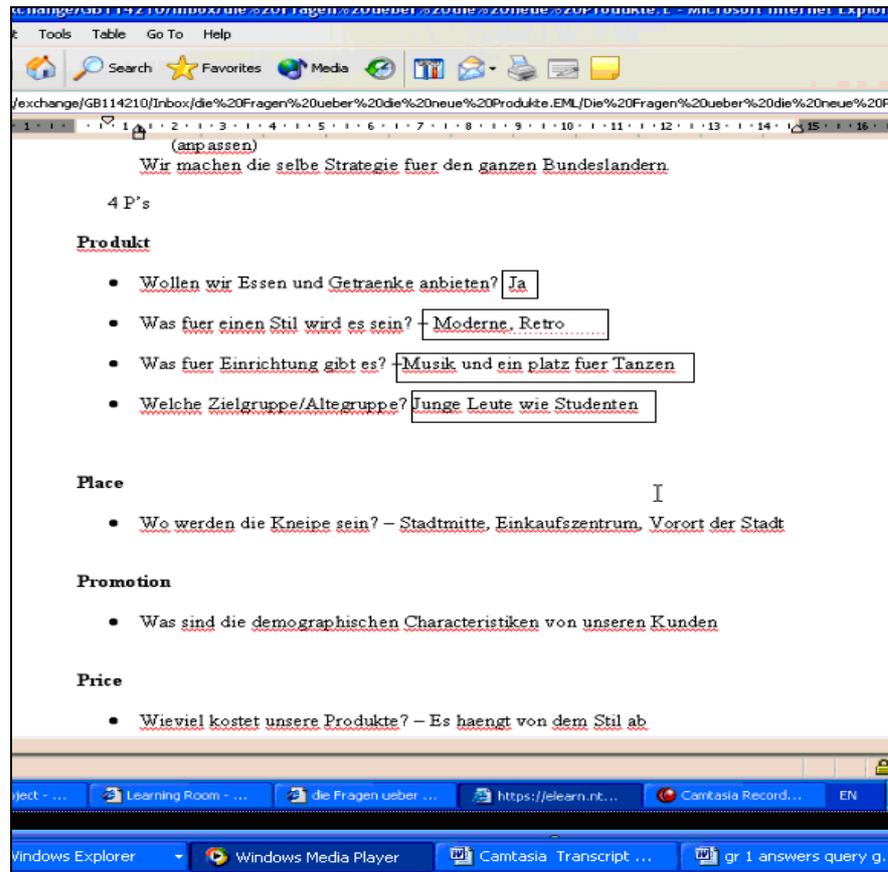
The following represents an embedded case story which appeared unexpectedly during the analysis of the core case study. When coding the transcripts using grounded theory methods, contradictions between the behaviour and talk of one student appeared. Student 1 was not passing information on to other groups, even though she had confirmed repeatedly that she was aware she had to. These contradictions were reflected on one hand in the dialogue between the student and her partner as well as the tutor, and, on the other hand, the student's actions, i.e., her not distributing the required information. The apparent mis-match between the student's talk and her actions made it necessary to revisit the actual recording in order to make sense of her behaviour. Using GT analysis methods, i.e., interrogating the data with meaning making questions can help gaining deeper understanding of what the participants do. Applied with a critical approach, GT can be particularly useful in discovering contradictions between the talk and action of participants since one of the guiding questions seeks to find out what is going on. Charmaz (2005:513) elaborates that

[c]ritical inquiry attends to contradictions between myths and realities, rhetoric and practice, and ends and means. Grounded theorists have the tools to discern and analyze contradictions revealed in the empirical world. We can examine what people *say* and compare it to what they *do* (Deutscher, Pestello, & Pestello, 1993). Focusing on words or deeds are ways of representing people; however, observed contradictions between the two may indicate crucial priorities and practices. To date, grounded theorists have emphasized the *overt* – usually overt statements – more than the tacit, the liminal, and the implicit. With critical inquiry, we can put our data to new tests and create new connections in our theories. [emphasis in italic in original]

Viewing the screen recordings repeatedly, it transpired that student 1 made an effort to hinder the development of the project by withholding information which was essential for the progress of others. She appeared to slow down intentionally the dissemination of information by a) sending emails to one person or one group at a time, avoiding passing it to other groups for whom it was relevant, and b) by "hiding" her responses in emails she returned (e.g., see screenshot week 1, Student 1, 46:10).

---

Screenshot week 1, student 1, 46:10



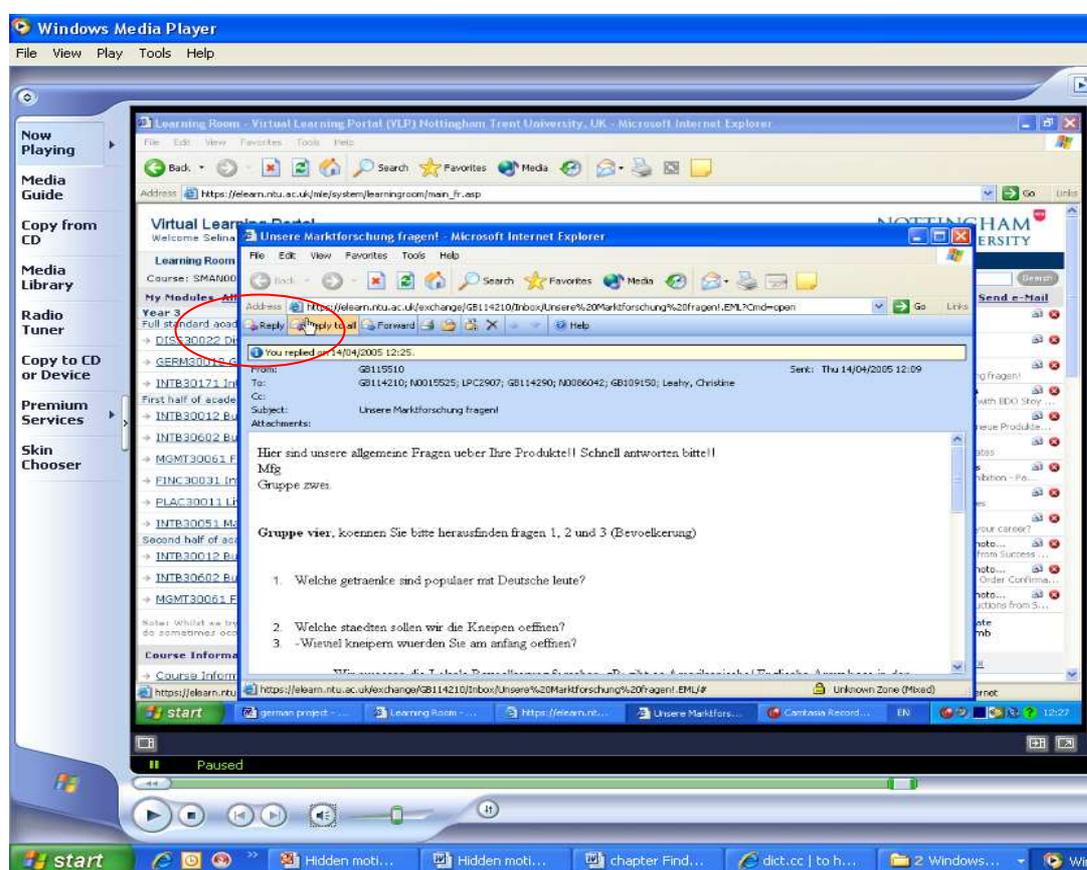
The student receiving this email may have mistaken the message as not including any new information. The incoming email had been returned to the sender without any explanatory text added. There had been no message text pointing the reader to the replies added to the original email, the replies had not been colour-coded or in any other way highlighted. In order to find the replies it required scrolling down the incoming message. In the screenshot above, the replies were highlighted in boxes. After the question marks of the questions initially sent by another group (here group 4), student 1 had written very short replies, e.g., "Yes" to the question on whether they would like to offer food and drink in their pubs, or "Modern. Retro" to the question of pub style. This screen shot serves as an example for her approach. She also added more information to other questions received from group 4, but it was not possible to capture all in one screenshot. The example above shows the replies to the question regarding the product only. Once her answers were complete, student 1 saved the document on her h-drive and sent the edited version as attachment back to student 8 (group 4) only (Week 1, student 1, 52:01).

---

The task was specifically designed to facilitate negotiation and communication between the different groups, thereby providing ample opportunity to use L2 and encouraging collaborative problem-solving. The analysis of the transcripts of this group's discussions and the screen descriptions showed the discrepancy between what student 1 said and what she did. Her cursor's movement on screen revealed that it took forty minutes, before group 1 had sent essential information (the

questions to be answered during the project) to the tutor. However, she still did not send any information to the other groups who were waiting for instructions. Even after repeated requests (e.g., group 2 requested the same information four times during week one), she would only respond to one person at the time, often with delay. On five occasions, in response to incoming emails, student 1 forwarded her attachment with the list of questions to one person at the time. On every occasion she used the reply button. Twice, she considered briefly the option to use the "Reply to All" (screenshot week 1, student 1, 53:54) or "copy to" button (Screenshot week 1, student 1, 53:36), but decided against it and thereby prevented the other participants from receiving the information which was essential for their progress.

Screenshot week 1, student 1, 53:54



Eventually, student 1 did disseminate the requested information, but only to 1 person at the time. The screenshot shows the incoming email to which student 1 was to respond. She clearly considered briefly to send it to all recipients on the list, but then she decided against it and posted it using the send-button only. During week 1, she sent out the list of questions 5 times, each time to one individual only. For example, when she sent the questions to group 2, she did so by using an email she had received from that group before and which had been sent to the tutor and all participants present that day; she briefly rested the cursor above the button 'Reply to All', but then decided to go for the 'Reply' button only (53:55), thereby preventing the other groups from receiving the questions from group 1, or indeed her own partner, who had helped phrasing them (39:35), and had asked once already to be sent a copy. She sent the list of questions firstly to

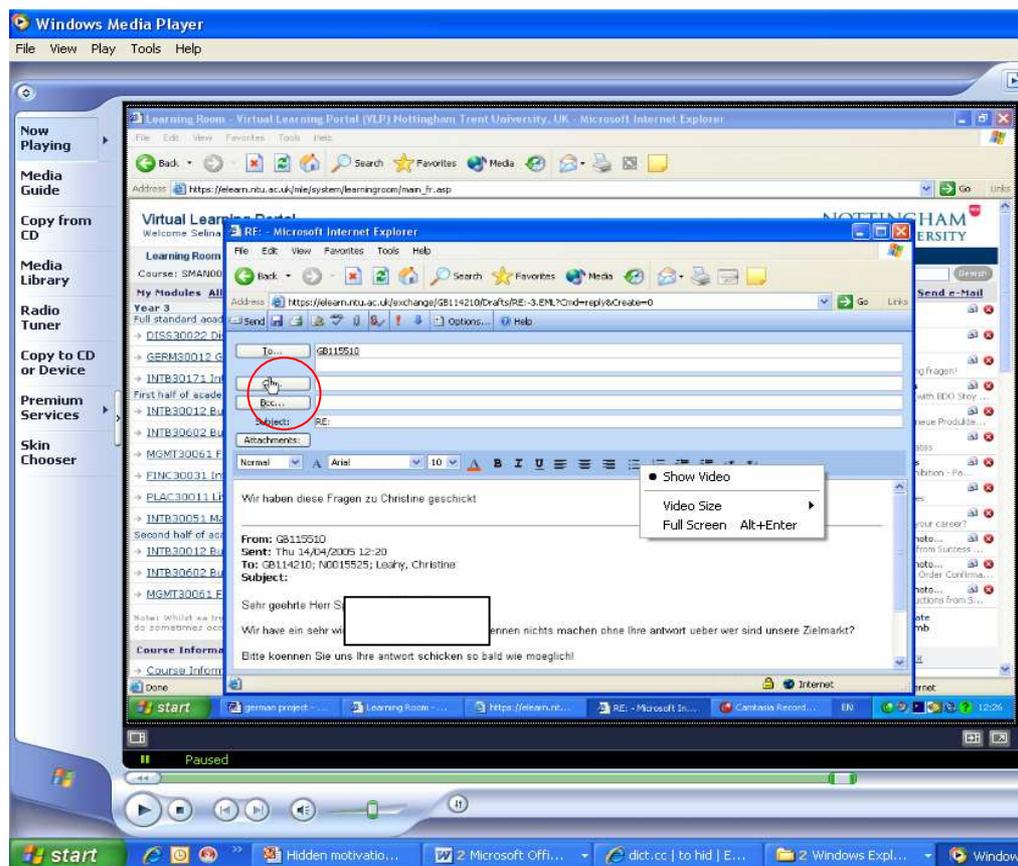
the tutor, then student 4 (twice, emails 4 and 5), student 6 (email 6) and student 7 (email 11).

---

Student 1 sent emails with minimal information, for example, four times attachments were sent without any further text. An email was sent with unmarked short answers within the original text (see screenshot week 1, student 1, 46:10). Some emails consisted of single text lines with very limited information value for the receiver, for example, 'We have sent the questions to the tutor' (screenshot week 1, student 1, 53:36), or 'Which information do you have for us?'. The idea that all class members needed the information was present in student 1's mind, but she did not act accordingly.

The concept of having to send correspondence to both partners per dyad was immediately understood by other groups. It could be expected that students might occasionally forget, but a consistent avoidance to address messages to more than one person seemed inexplicable. It can be ruled out that this behaviour was due to incomprehension since student 1's proficiency level was sufficient. By not fulfilling her part in the ERP, she created lasting confusion, not only during week 1, but also for week 2, and caused loss of vital time which could have been used more productively developing the task. The apparent void created by the sparse forthcoming of vital information, led to other groups making suggestions for possible target groups (cf. section: 'content development relating to the target group'). However, in line with the allocated roles, they still looked at group 1 to make the decision. The delay caused by student 1's behaviour, combined with student 2's very slow response to emails in general, led to irritation and frustration on the part of the other participants. It created problems for the fellow students who were held up considerably. It had a negative and lasting effect on the development of the ERP and was commented on by several groups during the debriefing. They referred to communication problems and not receiving answers to specific questions.

## Screenshot week 1, student 1, 53:36



In this instance, the cursor moved from send – to cc – to send. The student decided to only send this email to 1 recipient, but had considered copying other recipients in. The incoming email asked to have the target group named, it explained that without it the group would not be able to progress. Student 1 replied that she had sent the information to the tutor. No more, no less. No pleasantries, no address or closure, even though she had been addressed formally, as would be expected in business communication between companies. By not sending it copied to the tutor (as requested by the task brief), the student did not draw attention to the fact that she had not answered the incoming request. At the same time, she told her partner that she had thought that the tutor would disseminate the information. This example represents the seemingly inexplicable contradiction between student behaviour and student talk.

### 5.3.6.2 Change in behaviour during week 2

Student 1 started the second week with the same behaviour she exhibited during the first, by not sending emails to more than one person at a time and avoiding pleasantries in form of opening and closing remarks. She did not assist the reader with an email title reflecting the content, but rather left the title line unchanged. She forwarded previous emails, again without explanatory remarks which could help the receiver's comprehension. However, student 1 changed her behaviour towards the ERP with her 6<sup>th</sup> message sent during the 2<sup>nd</sup> week: She used the 'Reply to All' button for the first time and used it more consistently for the rest of

the session, thereby keeping all participants aware of her group's decisions. She sent the following six emails addressed to multiple recipients, mainly by using the "Reply to All" button. She appeared more cooperative and seemed more actively involved in the role she had to play as a member of the instructing company. Preceding student 1's change in behaviour, the teacher visited group 1 and again emphasised their important role, reiterating that they were enacting the role of the employer for the other groups. If they did not have all the relevant information they would have to instruct the other groups to provide it. Decisions would have to be made regarding the marketing tools, for example, promotion via newspapers, radio, and TV. Group 1 was in the position to lead the project by commissioning specific tasks from the other groups. Student 1 therefore could only 'lead' the project if she engaged with the task and also shared information. From that point onwards she seemed to change her approach to the ERP. She engaged with the task and seemed to take on the expert role as subject specialist in her dyad. She seemed comfortable, eventually taking a more responsible role making use of her specific subject knowledge. Her approach changed from one which hindered the ERP to one which actively and constructively contributed. The transcripts show her taking more initiative and the screen-capturing recordings show that she addressed more than 1 recipient in her outgoing emails, thereby complying with the task.

#### 5.3.6.3 Discussion of embedded case stories 1 and 2

The confirmation that student 1 did withhold information on several occasions could only be ascertained by extending the analysed data beyond the text-based data collected via transcribed oral communication, the written CMC, and student-created written documents in form of mini reports and powerpoint presentations. Incorporating the visual representations of student interaction with the computer in form of screen movements added multimodality to the analysed data which turned out to be a key to making sense of the contradiction between the student talk and student action. Had it been possible to record and observe the students' body language as well, possibly more clues to her behaviour could have emerged. However, just adding layers of data would have also added complexity which could in turn have obscured other features and thereby meaning. Extending text-based data with visual data can carry its own hazards and problems, as for instance the question which details to record and crucially, how to record them in order to represent the spatial, temporal and visual relationship of data to one another (Flewitt et al. 2009). The interpretation presented here is based firstly on text, the communication between students 1 and 2, as well as the communication with the tutor. When it was discovered that these two seemed to contradict one another this led to a return to the entirety of the data as represented by the screen-

recording software. All representations on screen were visible and could be scrutinised again, all applications which were opened, Internet sites students consulted, any text students produced, their emails and their mouse movement. The oral discussions were audible while text could be read as it appeared on screen, thereby facilitating a holistic approach to the data. While the initial analysis and subsequent interpretation concentrated on the language of text, the discovered contradictions were addressed by close observation of the visual language, a manifestation of the student's actions as represented in the cursor movement. The way the student interacted with the computer, her actions and the omissions of actions which became visible when analysing the screen recordings aided the process of meaning making of student behaviour. At first, the reason for the hindrance this group's behaviour caused could be seen as rooted in incompetence and not being sufficiently ICT-literate to deal with the demanding task. Student 2 was indeed occasionally struggling with technology. However, this explanation does not appear plausible in relation to student 1. Student 1 was a competent and fast email user, she confidently and purposefully switched between windows, emails and open attachments, she helped her partner using university email when he was slow navigating between views (pre-view, open email view etc). As she demonstrated at the end of week 1, she could forward information from the sent-box without any problems, after editing it quickly and colour-coding it. It appears inconceivable that she did not know how to use email purposefully, conveying the information she intended to convey. Instead, it appears she acknowledged that she had to disseminate information, but at the same time (as evidenced by her cursor movement) she obscured any information she passed on or, indeed, appeared to make efforts not to pass on requested information and to delay answers. Different reasons could have led to student 1's surprising behaviour: She could have initially disliked or resented the task or the learning mode (or both) and therefore may not have engaged fully with it and hindered the project's development during the first one and a half weeks. Or otherwise, she may have purposefully hindered the task for other reasons not made explicit: There is no clear evidence for the cause of her behaviour. Since student 1 was absent from the last class, she was not prompted to comment on her own contribution to the task completion. Being absent from the last session of the project meant that she failed to participate in the debriefing and missed the opportunity to write the individual report which included a critical evaluation of the contribution each student and each group made to the completion of the task.

Classroom dynamics are complex and the effect of the relationship between students on one hand and the teacher-researcher and students on the other, should not be underestimated. The student performance may be influenced by their

knowledge of the research situation. But there are also other factors of influence, variables in the research set-up, which may impact on the student performance, for example, the notion to want to please or perhaps the opposite, an intention to hinder.

It is impossible to find conclusive evidence why this student did not observe the task instructions initially even though she apparently had considered it briefly at least twice. Twice the hesitation regarding (non)compliance could be seen on screen. Whether the student also considered in her mind to act in accordance with the task but then decided against it, cannot be known for certain. However, this particular student had had issues with the tutor during her second year of study. During a class test, she had been caught copying from notes. As a consequence, she had to attend a hearing and was cautioned about cheating in a class test. The tutor had been of the impression that the issue of academic misconduct had been concluded with the caution, and had been left in the past. The incident had happened nearly 2 years earlier, before the student had spent a year abroad and no further mention of it was ever made by either the student or tutor. However, during the analysis of the recordings it was odd to find that this particular student was in the position to withhold vital information in a research project, which was clearly of importance to the teacher. It seemed plausible that the student purposely made use of the position of power. However, whether the previous incident had been a contributing factor motivating her to do so will not be possible to establish on the basis of the data gathered. This research project was not designed to look at student motivation behind their actions, indeed, it could be argued that deceitful behaviour would not have been easily discovered if other methods had been deployed, for example, a think-aloud protocol or a questionnaire or interview had been used in order to find underlying factors motivating the students. Rather, this research tried to look at how students made use of technology in solving the task, not obstructing it. Nevertheless, it is important to note that this particular student changed her behaviour and started to fully engage with her role during the second week of the project, after tutor intervention: She began to comply with the task, as evidenced in the way she interacted with the computer. If student 1's previous behaviour had been motivated by negative feelings towards the task or perhaps the tutor, this had changed by week 2. While initially she had exerted her power quietly and appeared to purposely obscure her less than helpful behaviour (in van Lier' words (2008) she was only minimally responsive), this behaviour became difficult and stressful for her to maintain: Her fellow students became increasingly irritated with her and kept requesting answers, both via email and through addressing her in class directly. It could be argued that student 1 decided to replace the stressful assertion of the negative power over the

project with the positive one in which she accepted her role as leader and subject specialist and directed her fellow students with clearer decisions. From the perspective of motivation, it could equally be argued that a motivational shift occurred after the tutor had appealed to group 1 to fulfill their role as leaders. Through this talk, group 1 may have realised and accepted the relevance of the task for them personally and thereby activated instrumental motivation (Gardner 1985) or intrinsic motivation (Benson 2001; Biggs and Tang 2007). As previously discussed, motivational factors had been considered from the outset and had been incorporated into the task design. While other students seemed to respond positively to the task and remained consistently focused on producing an outcome, student 1 responded positively only from week 2 onwards. Tutor intervention seemed to have created the turning point in the student's behaviour. Tutor presence during the task facilitates a consistent and immediate response to difficulties when they occur. Tutor presence, in particular at the start of the ERP which served to clarify the task and to settle students' in their roles, seems essential (Dennen 2000; Dracup 2008).

The finding that one student seemed to hinder deliberately the ERP instructions has taken up a seemingly disproportional part of the research results regarding student behaviour in the computer room. Nevertheless, the finding is relevant since it opens a window to deeper motivational forces which can have an impact on CALL activities and deserve to be investigated in future research. Raby (2010:13) states "that in a qualitative approach to CALL, it is important to be aware that a negative occurrence or the absence of an occurrence, are as meaningful as the positive occurrence of a motivational factor." Even though the root cause could not be determined in this particular case, the finding introduces a new perspective to task design and opens the question whether it is possible to prevent unhelpful student behaviour on the task design level. Design questions tend to concern themselves with issues relating to the achievement of the learning goals, fit with the curriculum and student motivation. They usually do not consider ways in which the task fulfillment could be hindered. It would be interesting if future research into students' behaviour while engaged in an electronic role-play included a focus on student motivational factors and their compliance with the task. As mentioned above for the research under discussion, motivational factors were considered on the task design level, but not on the task execution level. It is questionable whether measures can be taken during the actual project to limit the negative effects of some student behaviour. In this particular case, the apparent intentional hindrance of the role-play development caused by one student was not noticeable without very close analysis of the screen recordings. Therefore, it is unlikely it would have been possible to notice it and act upon it during class time. However,

in class it came to the fore that the supposedly leading group did not provide sufficient information to the other groups in time. The cause for the delay, for the expression of learner agency in form of the student responding only partially to the task (van Lier 2008), was not recognised in class. The group was repeatedly reminded that they had to make decisions and had to pass information on. In class it had been assumed that their delay in answering was caused by their generally slow responses.

As discussed above, the multimodal approach to recording data and answering the research question extended the analysable data to a non-text based language, to visual representations of student interaction with the computer. Recording software which captures the student interaction with the screen is therefore an essential part of data generation which supports the meaning-making process (Pujolà 2002). In this case it added the dimension which showed that student 1 had considered complying with the task requirements, but made a decision not to. Student 1's hindrance of the project must therefore have been intentional. Tutor intervention, it seems, facilitated a change in the student behaviour and succeeded in changing negative to constructive performance. This finding underscores results from other related research into online role-plays which reported that "online role plays require significant teacher support to help establish roles, clarify tasks and responsibilities, support acquisition of technical skills, set up a trusting environment, etc." (Dracup 2008:306). Other reasons for a slowing down of the ERP development could be located in one student's lack of ICT literacy and technical problems. This shall be elaborated in the following two vignettes.

#### 5.3.6.4 Navigation problems and lack of computer literacy

The mature student in the group had the most problems dealing with the computer environment. He combined an interest in technology with a lack of understanding how the technology worked. One particular example illustrates this: The setting up of an email distribution list. Creating an email distribution list with nine entries took student 2 nine minutes and forty seconds. He had announced to his partner that he would set up a distribution list, he later commented proudly on his email he had drafted and was ready to send using the newly created list: "OK - job done - to all, including you. Do you have an email thing sliding up?" The latter comment referred to the email notification which appeared when new emails arrived in the inbox. Once he had pressed the "Send" button, he anticipated the email-alert-message appearing in his partner's inbox, but to his dismay, student 2 had to discover that the distribution list did not work. He had to enter the email addresses again manually into the address bar, in order to send the drafted email off to the

other groups. He asked his partner to dictate the addresses to him to speed up the process. It took him another minute and thirty seconds to complete the action and finally to send the email. The drafting of this particular email message itself had taken thirty seven minutes from initially entering the name of the distribution list as addressee, to pressing the Send-button for the first time. While they both typed their respective messages, they also discussed the details of the content to be sent. The discussions and negotiations between them added extra time to the drafting of messages. All in all, student 2 needed forty six minutes and forty seconds to start the email distribution list, type the message, and type the email addresses manually after he had discovered that the distribution list was dysfunctional. Adding to this the time used for discussion in between, student 2 had spent one hour two minutes and thirty three seconds to send one email consisting of one hundred and twenty words. Furthermore, student 2 had difficulties navigating between windows. Once he had opened several windows, their number confused him, he got lost. When he attempted to move between different documents, he did not use the tabs at the bottom of the screen to enlarge the minimized versions, instead, he frequently opened the documents again, therefore having several copies of the same documents open at the same time. He repeatedly found himself unsure which applications were open and how to navigate between them. He asked his partner for help on several occasions. The following example illustrates this: student 2 opened the electronic dictionary 'leo', but when switching between windows he lost track of it. His partner pointed out that he had eight Internet sites open; they therefore appeared as a block behind the tab 'Internet Explorer'. Once he clicked on the tab, he could see that he had two windows for the dictionary *leo* and five windows for email and one window for the student intranet, which took him by total surprise.

student 2 week 2, student 2, 1:31:35 (verbatim)

*student 2* It keeps disappearing, my leo, it keeps happening to me, it disappears.

*student 1* That's the thing, you have eight documents there.

*student 2* How?

Student 2 was aware that he was slow in typing and had frequent problems navigating the computer environment. He tried to overcome this by preparing work in between classes, that he would have it ready at the start of the next class. For example, at the beginning of week 2, he introduced a new document he called 'Europa Ost' which represented a summary from his perspective of the first session. He introduced it first to his partner, then the tutor and finally distributed it to all groups by email attachment. This represented a positive and constructive way of

dealing with his problems with technology while helping the project development at the same time. After his disappointing experience with setting up an email distribution list, student 2 prepared an email address list outside class. He created it in a word document, ready to be used in the following week. He separated the addresses with semicolons, ready to be copied and pasted into the address section of outgoing emails. He had found a low-tech solution to help him to simplify sending emails to all groups.

For week 3, he apparently had also prepared a summary of previous email communication. At the beginning of the third session, he told his partner and tutor that he intended to send it to all groups. He wrote the email and used his email address list to copy-and-paste the addresses in, but then could not find the document he intended to attach (the purpose of sending the message) and therefore had to send the email without it. The email text in itself did not really provide any new information. He had probably saved the document under *My documents* on a different machine instead of his student account on the intranet and therefore could not get access. He tried to compensate his slow navigation in the technological environment with prepared work he brought to class, but then got confused where he had saved it. He could not find it when he needed it. After this episode of not being able to send his attachment because it was not to be found, his partner student 1 offered to work together from her computer. He gladly took up the offer and only once used his computer again to check his emails at the end of the whole session. Thereafter, he logged off.

These examples shall suffice to highlight that the computer environment represented a challenge for this student. However, this fact did not have a severe negative effect on the student's motivation to study and learn in this environment. Outside class, he engaged in frequent email exchanges with the tutor and seemed to have a very positive attitude towards the study mode using technology. He was keen using the electronic dictionary, accessing new information via various Internet sites and communicating via email. He did, however, need considerable time using any aspect of the technology.

Group 4 also experienced challenges caused by technology. Here, the issue was caused by the technology itself, rather than the people attempting to use it for their purposes. Their different approach to overcoming their technical difficulties shall be shown below.

#### 5.3.6.5 Navigation issues – overcoming technical obstacles

Group 4 experienced technical problems: On occasions during week 1, student 7 could not connect to her mail box. This was due to instability of the system used at the time, the virtual learning environment VLP. Fortunately, the times she was

prevented from using email were relatively short and not too disruptive. During week 2, the technical problems got worse. Both students could not access files from the VLP, therefore could also not open the specific task sheet for that week. Later on, student 7 was unable to open incoming emails, and could not create new messages. A little while later she announced (rather tongue-in-cheek) that even the Internet had broken. Student 7 addressed the access problem to email quickly by using her private Yahoo email account, she was concerned that her group could otherwise not continue working and acknowledged that it was also hindering others if they could not communicate with them. The ongoing technical problems group 4 experienced can exemplify difficulties a practitioner-researcher faces: Being primarily a teacher without institutional back-up, it is difficult to secure support which can solve problems as experienced by group 4 and which persisted during the project. Help, if granted, is often given out of good will and therefore also influenced by the workload of others. Out of kindness, two colleagues supported the project by a) downloading Camtasia to 10 machines, b) activating and deactivating the software for 2 hours each week, c) downloading the recorded files and d) creating DVDs per person per week. Neither the two colleagues providing this help nor the teacher had time to follow problems up beyond, involving central IT services. For this project, permission to use this one specific computer room was secured precisely because it was not centrally managed, but by the languages department. To come to a solution for the computer problems through central IT support could have been a lengthy process. Besides, the VLE used at the time did indeed have problems which eventually contributed to its replacement. Both colleagues providing support during the project suspected that the problems group 4 experienced were routed in the VLP rather than the actual computers.

#### 5.3.6.6 Text production in technology-rich environment

One example shall be elaborated here which illustrates several characteristics of text production as part of the ERP. It shows which actions the student took in the process of writing text in a technology-rich environment. When outlining categories and properties for week 2, student 7 and her ability to multi-task and navigate in the ICT environment had already been referred to. Student 7 represented a computer-literate learner; she was able to switch between different windows quickly and with purpose. She knew the URL of the electronic dictionary by heart and could use it effectively in different languages: French, English and German. She used the Internet effectively, did searches for relevant information and copied some Internet text and pasted it into the document she was creating. She rephrased the relevant information of the original version and thereafter deleted the text she had copied and pasted in. She could set up and use the spell checker

with ease and was confident to either accept or reject suggested options for change. She took typing short cuts for the spelling of the German *Umlaut* by typing the relevant vowel followed by another vowel: –e, thereby she was able to quickly replace the two letters with the *Umlaut* by using the spell checker. Instead of having to type the Alt key + three figures<sup>58</sup>, which can be seen as laborious and interrupting the flow of typing, she just typed 2 letters and used the spell checker function later to insert the appropriate *Umlaut*. Student 7 cared about the visual appearance of her work; she changed the font from Times New Roman to Gill Sans MT and spacing from 1 line to 1.5 lines. Student 7 wrote the text between 41:24 when she opened a word doc and 1:01:26 when she had completed the text and saved the file. Her final composed text consisted of 127 words. While drafting the text, she wrote more words, but deleted some again. The whole process took 20 minutes and 2 seconds. During that time she did not work exclusively on text production all the time, but also talked to her partner in between and kept up to date with emails.

#### 5.3.6.7 Discussion of embedded case stories 3 to 5

The third and fourth vignettes showed the impact technology itself can have on the ERP task, while the 5<sup>th</sup> vignette illustrates how a student may use technology to aid text production. The third embedded case story showed how a lack of navigation skills can hinder swift responses as exemplified in student 2. The fourth vignette exemplified the impact technical problems imposed from the outside can have on the students. However, they overcame their problems creatively and constructively by, for example, reverting to private email when the university email account did not respond. In terms of problem management, this group was very successful in dealing with problems imposed on them from the outside. Difficulties caused by technology can lead to considerable delay and can have a de-motivating effect on the participants (Dracup 2008). However, even though the technical problems caused frustration and contributed to the delay in information flow, they did not seem to de-motivate the participating students to the extent that they would recommend to abandon the task in the future. More the opposite, all students who participated in the debriefing proposed to keep the task as part of the syllabus, albeit with small modifications. Two groups suggested independently from one another to introduce a weekly face to face meeting to facilitate catching up and clarifying any areas of potential misunderstanding. The idea was directly born out of the experience of delay in information flow which had been identified to originate

---

<sup>58</sup> ä = Alt 132; ü = Alt+129; ö = Alt + 148 or ae for ä, ue for ü and oe for ö; also ß = Alt+225. If the vowel + e combination is used, the German spell checker immediately offers to replace it with the appropriate Umlaut. In terms of typing time and ease, the latter is favoured by many students.

in group 1. A face to face meeting would facilitate a quick solution to any delay caused by having to wait for email responses. The fifth embedded case story represents an example of a computer-literate student who made full use of the environment's affordances to express her agency. She exhibited a high level of L2 proficiency and successfully used her linguistic skills and ICT skills to create the outcome she aimed for. Her fast and skilful manipulation of the environment facilitated, for example, vocabulary confirmation through dictionary checks involving three languages and leaving her time to work on the visual appearance of her created documents. From the position of completed data analysis, it would have been useful to interview her about the ICT choices she made with a view to explore further the relationship between her computer literacy and her high level of L2 proficiency. In order to fully complement the development of individual students' interlanguage, the medium's affordances can facilitate the process. Having reached a high level of L2 proficiency already, can also help the use of computer tools. Lower level learners may be more easily overwhelmed by the greater demand on their cognitive processing abilities when concentrating on L2 and ICT skills simultaneously. This could explain the frequently observed use of a variety of applications and access functions in advanced learners like student 7. Further research designed to explore the relationship between successful L2 learners and successful application of ICT skills would be useful. The framework of the present research does not cater for specific enquiry into this relationship, but served to explore the participants' behaviour and emerging interactional patterns in the technology-rich environment.

#### 5.3.7 Evaluation criteria

Applying the relevant evaluation criteria for CALL to this section of student behaviour in the computer room, the results are encouraging. Following Chapelle's criteria of CALL evaluation (2001), two criteria are applicable to this section: positive impact and practicality.

The *positive impact* of the task was demonstrated above, the students engaged in it and to a large degree continued speaking in German during their group work activities. Group 4 in particular continued communicating in L2 even when deviating from the task and exchanging a few private comments. On his own initiative, student 2 of group 1 continued work outside class, for instance by writing session summaries in German. Furthermore, it had been observed in previous ERPs that students reached out to real companies outside the classroom and sought information via email to help them in their endeavour of solving the task, thereby

gaining “pragmatic abilities that will serve in communications beyond the classroom” (Chapelle 2001:57).

During the debriefing students were encouraged to comment on the task. The feedback was constructive and positive. Students saw the activity as being useful, helping avoiding professional mistakes in the future, being exposed to work as they would experience it in the future (“e-environment”)<sup>59</sup>. They made constructive suggestions how the task could be improved and the flow of information safeguarded. They offered solutions to problems such as those which were described in the mini case story of student 1. The participants felt that brief face-to-face meetings of the whole group at some point during each session may be helpful in preventing communication problems as experienced in this ERP. The second relevant criterion for this section, based on Chapelle’s model, is that of *practicality*. This criterion “refers to how easy it is for the learners and teachers to implement a CALL task within the particular constraints of a class or language program” (Chapelle 2001:57). Since the university is generally supportive of e-learning activities and a sufficient number of computer rooms is available for the double purpose of self-access and teaching, it did not create a problem to book a computer room for the activity. Technical support was available throughout, even though it did not help solving the persistent access problems group 4 experienced, but which seemed to have been rooted in the VLE used by the institution at the time.

In this chapter, Chapelle’s evaluation criteria for CALL were applied at the end of each section which dealt with the different research questions respectively. Individual elements of the overall task were looked at, for example, practicality and positive impact. Taking the evaluation of the task to the next level of looking at the whole of the ERP as a CALL task, rather than individual components, the task can be compared to more recent technology which can support SLA role-plays. For example, Second Life shares some basic functions with the ERP, but features also fundamental differences. The ERP wants to mimic the students’ potential future professional life by conducting the task within an authentic framework as visualized in Figure 24. While the ERP attempts to evoke identification with the role and appeals to the learner to incorporate their subject-specific knowledge, the task situated in Second Life retains the game character which is situated in a fictitious virtual setting: The student can firstly create and then play with the persona as enacted by an avatar, encountering other personas/avatars as part of the game. Second Life has been described as providing “an environment equipped for the continual creation and revision of micro-narratives” as opposed to “an overarching story for users to fit into” (Swift 2010:187). The ERP, on the other hand, is firmly

---

59 The debriefing text can be found in Appendix 2 (original texts) and Appendix 10 (translation).

based on the real world. Even though it is only a make-believe business situation which integrates not only authentic material, it incorporates authentic communication with people in the real world, for example, in businesses and companies (cf. Dracup 2008). Hereby, the ERP creates “authentic educational contexts that are close to real working life” (Tammelin 2004:145) and offers learners “opportunities to study both content and practice their communication skills” (ibid).

ERP	Second Life
unequivocally a role-play	Game-character
Takes place in authentic setting	Takes place in a fictitious setting
Student role: takes on role of business person, outcome-focus	Student role: plays with their persona (avatars) in Second Life; Student can take different roles, not necessarily outcome-focused
Learning through interactive process	Learning through interactive process
Teacher role: planner of activity; facilitator	Teacher role: planner of activity; guide for students
More “realistic” business situation where companies would email one another	“ambient education” (Clark 2009:160)

**Figure 24 ERP VS Second Life**

The role of the student is likely to differ significantly in the two settings. While the student of the ERP is focused on the task outcome, a tangible product, here a marketing strategy, the student participating in Second Life acts through created personas, and explores the setting. The purpose for interaction is likely to be explorative rather than collaborative: there is less room for collaborative construction of knowledge with peers. In both settings the role of the teacher is similar regarding the planning of the activity, but as part of the electronic role-play the teacher acts mainly as facilitator, the student is in control of the direction and action of the activity. In Second Life, on the other hand, the teacher’s role is that of a guide rather than facilitator. Clark (2009:160) refers to “ambient education” when students engage in Second Life while the ERP aims to mimic more “realistic” business situation by applying skills and functions as used in the real world.

### 5.3.8 Summary of chapter 5

The first two sections of this chapter presented the findings in relation to their respective research questions, i.e., how learning of content and language learning

can be evidenced in the work of students who participated in an ERP. In answer to research questions 1 and 2 evidence could be shown that students did learn content and language. Both concepts were approached from a process perspective rather than one of outcome. Learning took place through collaboration with others; content knowledge was based on collaborative construction rather than knowledge transfer. Using the Internet as primary source of information rather than following a text book proved unproblematic and more appropriate since it facilitated access to very current and relevant information which was selected by the participants rather than prescribed, and which was occasionally presented in multimedia format.

Research question 2 was also approached with a process perspective rather than concentrating on outcome. The findings relating to question 2 showed that students constructed L2 output in collaboration with one another. The process of constructing meaning reflected their cognitive activity and was not tutor-led. The students participating in the project were considered to be advanced learners of German. Given enough time to produce carefully constructed L2 output or when participating in discrete L2 tests, they would have probably produced a higher level of accuracy. However, participating in the ERP exposed them to time pressure and a holistic learning situation in which they had to concentrate on several levels at once: the content level, since the task was content-based, L2 accuracy in natural L2 output, as well as the level of technology manipulations. The findings show that the high cognitive demand on students was manageable overall. They occasionally displayed creative solutions in order to overcome perceived L2 problems, for example, finding the correct spelling by breaking down compound nouns into constituent part. Frequently, students needed to reactivate previously learned concepts and encountered gaps which they tried to overcome by relying considerably on their peers, rather than firstly and routinely accessing computer tools as for instance electronic dictionaries. They did, however, make use of the computer's affordances, in particular of the spell checker.

The answers to the 3<sup>rd</sup> research question have shown that students engage with the ERP and generally focus on the task at hand. Off-task occurrences were brief and rare. Evidence of focus on form could be found during all weeks; however, the effectiveness of this focus regarding accurate language use varied and depended in part on the effectiveness of the emerging experts. Working in dyads led to the development of experts in different capacities, for example, ICT or L2 expert. Even though these roles showed fluidity, once an expert role had developed the opinion of this 'specialist' had an impact on the partner. Students exhibited different approaches to text production in the technology-rich environment, but none of them copied substantial amounts of source texts from the Internet and tried to pass them off as their own. They summarised, synthesised,

paraphrased, modified the source text ideas and incorporated them into their own texts thereby practising L2 as well as higher order skills. Students recognised the affordances of the CALL environment and used them to varying degrees to exercise their agency. Close data analysis facilitated the emergence of embedded case stories which further illuminated the behaviour or interactional patterns students employed while engaged in the CALL task.

Applying Chapelle's evaluation criteria, it was shown that the ERP represents an effective CALL task with positive impact. The positive impact of the task could be demonstrated in several ways: In the main, the students were fully engaged in it and showed strong focus. The L2 output was very high, particularly the oral component. Even during brief non-task related activities, some of the participants continued communicating in L2. The ERP task had an impact on the students' real life, for example, knowledge gained during the activity was transmitted to a friend, and contact was sought to a real business in Germany in order to receive more information. The activity facilitated combining subject-specific skills and L2 skills, facilitated practising L2 skills within a subject-specific context, hereby anticipating and mimicking future professional problem-solving situation. Students acknowledged this positive impact during the debriefing session.

The next chapter will conclude the thesis and draw together the different strands which were discussed so far.

## 6 Conclusion

---

This chapter will present the conclusions drawn from the exploratory case study. It will address the questions of validity and scope.

This chapter will close with an outlook to future research.

---

The case study of the ERP set out to answer 3 research questions and to achieve two main aims. These aims were

- to contribute to the empirical knowledge of the effects and effectiveness of collaborative CALL in open task settings.
- to contribute to the methodological knowledge in CALL.

Both the findings in relation to the research questions as well as the level of achievement regarding the aims will be discussed below.

### 6.1 Contribution to empirical knowledge

This research project has achieved its aim to contribute to the knowledge base of open task CALL as manifested in the electronic role-play. The findings show that both content and L2, can be acquired within the framework of the ERP task, i.e., within a pedagogical approach embedded in constructivism. In its general understanding as taken for this study, the sociocultural perspective situated the L2 learning task in context which was rooted in the students' and the target language's cultural background. Taking the perspective of SLA theory, the sociocultural approach views "second language acquisition as contextually situated and is concerned with situated language as it relates to internal processes" (Gass and Selinker 2009:283). The task facilitated communication and negotiation. In turn, students' negotiations and collaboration facilitated to construct (from their perspective) 'new' knowledge collaboratively, both in respect of content as well as language (Figure 25). Constructivism as a pedagogical approach builds on the notion that learning represents an active process in which learners engage and which has collaborative construction of knowledge at its core. This research showed that the ERP task embedded in this approach is successful in achieving its goal on both accounts, learning content as well as language.

The first and second research question concerned themselves with the difficulty of how evidence of content and L2 learning can be demonstrated when dealing with advanced foreign language learners who are engaged in open task CALL with numerous variables.

For RQ1 the problem of finding a way to show evidence for content learning was overcome by incorporating a comparison method into the task: The comparison between self-posed questions in week 1 and the written and oral reports at the end of the project could demonstrate acquisition of content in relation to more than one ERP (cf. chapter 5.1 and Leahy 2004a). Furthermore, once students had begun to engage in the task, content strands became transparent which developed out of the collaborative process of solving the task.

For RQ2 the problem of finding a way to show evidence of L2 learning was approached with output theory. Unlike bespoke evaluation studies focused on SLA, the core case study was not based on outcome, as measurable with pre- and post test which establish 'value-added'. Instead, in this study language-related episodes (LREs) were highlighted which can represent windows into the SLA process, since they can serve as facilitators for L2 acquisition. It could be demonstrated that LREs (Swain and Lapkin 2001) occurred in which students hypothesized about appropriate and accurate L2 use. While the study showed different types of solutions to students' language problems, it did not concentrate purely on occurrences of finding the correct L2 use through the process of collaboration and interaction. If, however, students had found appropriate and accurate L2 solutions, these were not tested via a recall test at a later stage in order to establish whether long-term or deep learning had occurred.

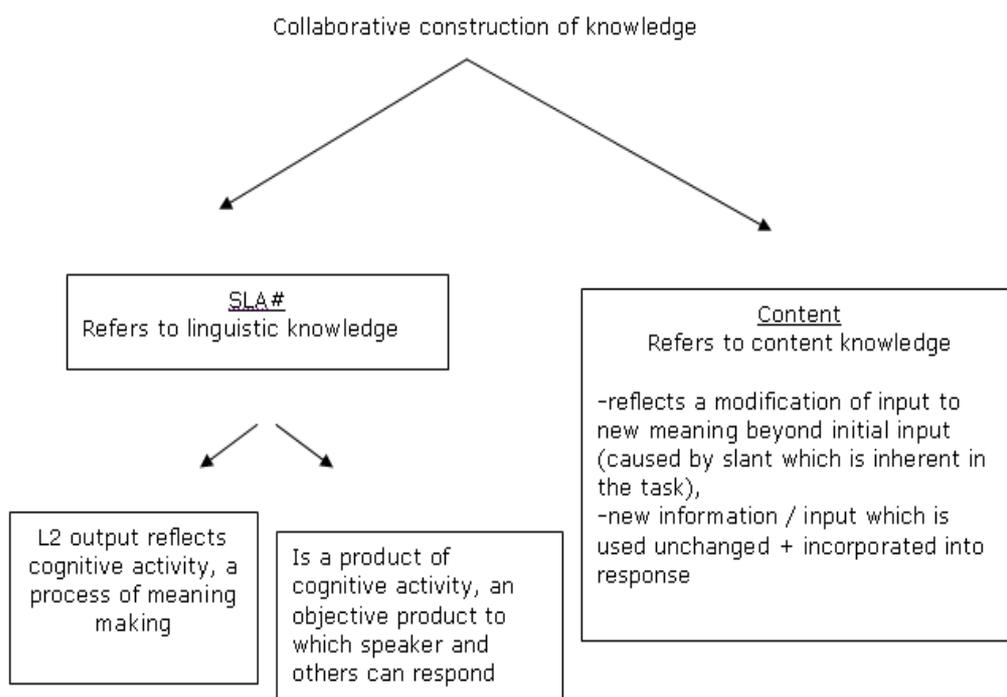
The LREs successfully highlighted moments of student reflection on L2. These were concerned with lexis, and surprisingly to a large part with lower level grammatical rules. Often, students were aware of the part of L2 grammar they were unsure about, for example, adjective forms or cases, they were aware that they had learned the forms before, but they frequently needed to seek help in order to activate the knowledge of the accurate and appropriate form. It became clear that the unsuccessful or only partially successful activation of previously studied grammatical rules and spelling conventions was a cause for L2 inaccuracies.

Furthermore, it could be shown that the level of cognitive demand on the learner can have an impact on accuracy: Very high cognitive demand seemed to lead to less accurate L2 output. Once the cognitive demand was reduced it was shown that the level of L2 accuracy can be improved.

### 6.1.1 Construction of knowledge regarding research question 1

Both answers, those in relation to RQ1 and to RQ2 referred to knowledge building or acquisition of knowledge. It could be shown that students did construct and acquire new content knowledge. They also engaged in the process of building new linguistic knowledge. Figure 25 represents these two different meanings of collaborative construction of knowledge which could be evidenced in the findings the research questions produced.

As discussed in chapter 5.2, applying Swain's output theory proved helpful in addressing RQ2. According to Swain (2000), the process of constructing linguistic knowledge (Figure 25, left hand side) can be divided into two distinct parts: the first reflects the process of meaning making while the second consists of the outcome of the same, the actual utterances which reflect the linguistic knowledge which had been newly constructed, a process which Swain (2006) called 'linguaging'.



**Figure 25 Meanings Of Collaborative Construction Of Knowledge**  
#Collaborative construction of knowledge regarding SLA follows Swain 2000.

---

This research discovered that for the participating advanced learners of L2 the recorded incidents of focus on form included lexis as well as various grammatical forms, often belonging to less advanced levels of proficiency. The process of languaging resulted in L2 output which could either represent a re-activation of

previously learned forms or indeed represent a learning of the form which had not been mastered before.

The right hand side of Figure 25 represents construction of knowledge at content level. This can be evidenced in the example of Irish pubs. Input or information which was sourced from the Internet and contributions from individual participants were used to create new meaning beyond the initial input: It informed the new product 'pub' which the group created. Other information was used unchanged, an occurrence which was close to knowledge transfer. For example, the information that only one chain, Schnäppchenmarkt, seemed to sell cheap beer in Germany (fact), was also incorporated into new meaning that there is limited competition in the market, and therefore the recommendation to exploit a niche market could develop.

The findings in relation to RQs 1 and 2 are linked to the learning process within the CALL setting which uses computers and the Internet, i.e., ICT which is integrated into the CALL activity. The students filtered, evaluated and synthesized information from Internet sources and developed their marketing strategy based on that information and their 'professional judgment' as far as the latter had been developed as an outcome of their main programme studies, hereby linking the main degree course with L2 study. The main degree programme introduced skills and knowledge, and the language class offered opportunities to apply both to a related and current problem-based L2 task. This kind of task entrusts the students with the power to make informed and appropriate decisions, thereby preparing for the world of work. As discussed in chapter 5.1 in relation to RQ1, my previous research on the ERP (Leahy 2004a + b) supports this finding.

#### 6.1.2 ERP and interactional patterns

In the introduction, for the purpose of this thesis, the terms effect and effectiveness were defined in relation to the effectiveness of learning content and language, while taking into account the effect of the CALL environment on the participants and learning strategies.

The research findings confirm that the computer room setting had an effect on the students' learning processes and their interactions with one another and the computer. In answer to RQ3 interactional patterns could be established, for example, the working modes which developed, how collaboration materialized and how students reacted towards technology problems. Furthermore, the role of the expert emerged. The expert role was found to be potentially problematic since it could lead to the use of inaccurate forms in a few incidents. Evidence of focus on form could be shown every week, either initiated by the teacher or student. Furthermore, it could be shown that students expressed their agency and

appropriated the environment's affordances. In relation to the use of spell checkers, electronic dictionaries and an online translation tool, it could be observed that students evaluated the answers provided by the tool and occasionally decided to reject the offered solution if they consider it inappropriate. This reflects the students' ability to make informed decisions on the basis of their L2 knowledge and points towards student agency and autonomy. Students used accessed Internet texts with care, they summarised and paraphrased the information they needed and did not try to plagiarize longer text by copying and pasting it into their presentations or written reports. The computer room setting was therefore effective in supporting the students to solve the task and overcome some of the L2 difficulties.

The ERP belongs to "established CALL" as defined by Levy and Stockwell (2006:241) who refer to the use of

mainstream technologies that are employed in education and society more broadly. This includes the use of information and communication technologies (ICTs) and mediated communication technologies such as CMC. In established CALL, directly shaping the technology itself is not a principal concern.

The ERP makes use of ICTs and CMC for L2 learning purposes and thereby becomes a form of open task multimedia learning. From the perspective of the end of the first decade of the 21<sup>st</sup> century, the technologies employed are not cutting edge and would not be considered as emerging CALL. In Levy's and Stockwell's sense (2006:241), emerging CALL makes an attempt "to break new ground by engaging directly with the technology itself." Instead, the ERP uses technology primarily as a tool for access to the Internet, and therefore communication and information, as well as a tool for text production and access to functions which can enhance accuracy and comprehension, for example, spell checker and dictionary. Even though this use of the technology would not have been considered mainstream during the early ERPs, since student access to private computers was less widespread and the use of email and Internet access less common, the technology had become mainstream by the time the last ERP took place.

As stated above, from the present perspective the functions of technology as applied to the ERP represent established CALL. They include ICTs and CMC which are considered to be mainstream technologies from the present perspective. Other, more recent forms of CALL may utilize L2-based role-plays in which students take on personas in the process of fulfilling a task, but using newer technology. For example, from the present perspective, tasks embedded in Second Life could be considered to represent emerging CALL. Similarly to the ERP, using Second Life as a setting in which to practice L2 also allows the students to immerse themselves into a role-play where they direct their avatar to act out the task. However, there

are fundamental differences between the 'simpler' application within established CALL in form of the ERP and those within the setting of emerging CALL, for example, in Second Life (as was discussed in the previous chapter). While the first represents a role-play which aims to mimic professional life and facilitates reaching beyond the classroom to the real world outside, the second represents a game which remains situated in the virtual world populated by avatars.

In the context of subject-specific L2 practice for advanced L2 learners, the advantage of the ERP lies in its significance to the students' lives and is situated in its relevance for their future employment, a point which was highlighted by students themselves during the debriefing. Such ERPs which are embedded in the main programme of study and sociocultural aspects of the target language and community facilitate preparing HE students for the "complexity and uncertainty associated with a globalize, fast-developing and diverse society [... in which] knowledge is constructed and developed through interactions that increasingly make use of digital and networked technologies to facilitate joint solutions" (Lund 2003:269).

### 6.1.3 Task evaluation

Task design and task evaluation are very closely linked concepts (Levy and Stockwell 2006). This study has focused on both of these elements: The case of the study and its context were described in depth, i.e., details regarding the task design from the perspective of pedagogical approach, task-based learning and SLA theory. The evaluation of the task concentrated on how any potential for learning could be demonstrated. It explored how students appropriated the environment with its affordances for their purposes and enabled them to exercise their agency. In terms of pedagogical approach as reflected in current models of CALL, the task belongs to integrative CALL (Warschauer 2000), or in Bax' (2003) terms integrated CALL.

Applying the criteria of Chapelle's principles of CALL evaluation (2001) to the ERP, (i.e., the language learning potential, learner fit, meaning focus, authenticity, positive impact and practicality) it could be shown that the ERP represents an effective CALL task with SLA potential.

The central focus on language learning is seen by some researchers as essential in L2 classes (Chapelle 2001; Skehan 2003) or even most important in CALL tasks. I have argued that advanced learners of L2 for specific purposes need opportunities for L2 practice in contexts meaningful to them, more than activities which primarily focus on form. The task design relied primarily on student-directed focus on form and secondly on the teacher initiating focus on form when students experienced difficulties. The rationale for student-initiated focus on form was

anchored in two principles: the individual's needs differed since student needs were in part caused by their different levels of active linguistic knowledge. They had encountered and practised all relevant grammatical rules before, but the level of mastery differed between students. Secondly, the openness of the task made it impossible to anticipate and introduce forms in a pre-task activity as advocated by Willis' task cycle (2004). On the other hand, the easy access to electronic dictionaries potentially facilitated access to translations and could therefore address any individual needs on the level of lexis quickly. The findings showed that many incidents of focus on form were based on lexical queries which, however, were not always routinely address through electronic dictionaries. In the case of student 2 this led to problematic new vocabulary inventions or vocabulary used inaccurately, in the case of student 7 electronic dictionaries mediated quickly and efficiently between three languages.

It would be of interest to look at the phenomenon of accessing computer tools in relation to L2 proficiency in more detail. Student 7 was already very proficient in L2 use. Did her proficiency enable her to make more use of the computer tools or did her use of the computer tools make her more proficient in L2? Some interdependence can be expected, but it would be of interest to extend the research in the future to investigate the relationship between existing L2 proficiency and use of computer tools. Such findings could impact on task design in relation to students' levels of proficiency, in particular for advanced learners and for tasks without built-in focus on specific forms.

The success of task-based learning as exemplified in the open task of the ERP is influenced by the teacher and learner. Successful progression through the task requires a positive learner view of autonomous learning, as well as an interest and confidence to fulfill the role the student has taken on.

In this ERP, autonomous learning was promoted through the task design and its relevance for future work, thus appealing to the student's sense of purpose. However, not all cultures promote autonomous learning, and for some cultures close guidance by the tutor may be the norm. Such students may not be familiar with autonomous learning tasks (Schröder 2004) and may need more initial support to fulfill their roles if they participate in an ERP.

Similarly, the role of the teacher was crucial to the success of the ERP. The task offered student choice, i.e., the choice of product and choices during the process of developing a marketing strategy. The teacher needed to be able to move confidently between the roles of L2 expert, a more traditional teacher role, and the role of facilitator who can "take a back seat" and allow students to take the lead. "To let go" of the classroom control in terms of task development may cause

teacher anxiety (Vinther 2010<sup>60</sup>) and the teacher may need some time to get used to exercising less control. Professional training can prepare teachers for the change in their role to include the function to act as a facilitator in tasks which aim at student autonomy and which do not primarily focus on knowledge transfer, but rather collaboratively develop knowledge. Hampel and Hauck (2006:7) make a strong case for the change "from an instructivist, teacher-led approach [... to] sociocultural theories of learning which are based on notions such as the centrality of interaction with others and the situatedness of learning."

As the case study was able to explore, allowing students to take control of the task development did not only produce very diverse marketing strategies, but also valid and interesting ones.

The complex task of this ERP is not suitable for beginner learners since they would be likely to be completely overwhelmed by its demands and choices, which could easily lead to a level of cognitive overload from where the students cannot recover.

For intermediate L2 learners, the electronic role-play could be adapted, but would need to be reduced in its level of complexity regarding content and level of L2. For example, providing a pre-selected and limited amount of support material as source material, instead of just providing access to the whole Internet, would reduce the cognitive demands on the level of content as well as L2.

The higher degree of student autonomy and here also maturity in relation to the subject-specific content, seems to contribute to advanced L2 learners thriving on the ERP task, as is reflected in student comments during the debriefings. However, the positive impact such a complex task may have, does not primarily materialise through an element of fun. Instead, the students may even experience some degree of discomfort when having to solve more complex problems or are faced with unpredictable behaviour of fellow students. One embedded case story discovered how one student hindered the project initially. Mirroring real life, as in professional situations in which one has to cope with colleagues' behaviour which may not be desirable, the other students participating in the ERP did address fellow students' shortcomings with positive contributions with a view to overcome the experienced deadlock. They mastered situations of conflict through development of solutions which were transmitted via social interaction and thereby valuable L2 practice. They even offered suggestions to change the task brief in order to avoid similar situations in the future. This clearly reflects a high level of engagement with the task and its outcome and reflects practice of desirable employability skills.

---

<sup>60</sup> Comment by Jane Vinther during her paper "Cultural narratives as enhancement of motivation through collaborative CALL" at the CALL conference in Antwerp 2010.

The positive impact of the ERP is underscored by other online role-play findings which did not involve L2 (Beach and Doerr-Stevens 2009; Dracup 2008, 2009; Hrastinski and Watson 2009).

Online role-play is a term often used for games, but also for other role-plays which have been transferred from the traditional face-to-face mode to the online, technology-based mode. Role-plays aim to add significance and purpose to the learning situation, bringing the subject area closer to the learner by directing them to enact a persona or role, and guiding them to take a particular perspective.

Online role-plays can be used as simulators, for example, in professional contexts of medicine, law and business teaching, but also in L1 composition classes. For example, Beach and Doerr-Stevens report on an online writing class (L1) and refer to creating the ground for a "rhetoric of significance", i.e., they believe that students "are more likely to engage in collaborative arguments if they perceive an issue or problem being addressed as significant to their lives – as being a big deal for them" (Beach and Doerr-Stevens (2009:462). Dracup (2008:296) views the role-play as the creation of a story, the "role play as participating in a story". Similarly, the ERP discussed here concentrates on the solving of the task, the creation of a business strategy. Furthermore, Hrastinski and Watson's (2009:288) view stresses the authenticity factor, they see role-plays as making "more authentic learning experiences possible since learners gain experience and understanding of the social interactions that arise in particular situations, such as during conflicts in teams". These examples have in common that the authenticity of the task and its relevance to the students' lives is capturing the students' interest which leads to a concentrated engagement with it. It can motivate the student to enact their potential future self, their transportable identity (Richards 2006) which can create a connection between the students' future life as professionals and their L2 practice in class.

The above highlights the importance of the task being relevant to the learner group. For the study under consideration, the relevance of the language study has been made transparent by transferring it to a situation embedded in the students' main study programme.

## **6.2 Contribution to the methodological knowledge in CALL**

The second aim of this research was to contribute to CALL methodology. This present study contributed to CALL methodology in several ways, for instance by reporting in some detail on the context in which the case study was set and the methods applied for data gathering, data analysis and data interpretation. By providing this amount of detail, including to background and framework, a replication of the study is possible. In fact, to some degree replications of the

study have already taken place, but only in relation to the case itself, not the research methods applied: The case under investigation was replicated, the same ERP was used in class six times, however, the methods of data collection and interpretation were developed during that time. Primarily, this thesis has reported on one core case study, but, as a form of triangulation, evidence of previous ERPs was used in order to support or contradict the findings. Triangulation “may be defined as the use of two or more methods of data collection in the study of some aspect of human behaviour” (Manion, Cohen and Morrison 2008:141). Taking a longitudinal perspective, evidence of previous ERPs was used to cast more light on findings of the core case study, while at the same time being aware that time itself is an important variable in the actual research setting. Time had an influence not only on the data collection methods, but also on the computer literacy of students and the teacher, the user-friendliness of applications, the amount of information available on the Internet etc.

Researching advanced L2 learners who are engaged in an open task CALL activity presents the additional difficulty of uncontrollable variables which creates a problem for quantitative research methods. This problem was overcome by using a qualitative research approach and the application of output theory and grounded theory for data analysis.

Important in the context of research reliability is that the methods of data collection became more reliable and objective with time. While the early projects had to be content with cruder recording methods, the core case study benefited from use of tracking software which recorded all student language output, both on screen as well as spoken communication. The last ERP therefore represents a very good fit between the recorded data and what actually happened in the reality of the classroom, one of the principles of reliability in qualitative research (Manion, Cohen and Morrison 2008). Even though any type of recording cannot produce a true representation of what happens in a real life setting, the Camtasia recording comes close to capturing all necessary data in order to facilitate answering the research questions. By taking a longitudinal perspective and reporting on the various steps which were taken over time in order to find appropriate methods for data collection and analysis this study contributes to CALL methodology.

Another research problem was reflected in the difficulty of comprehensive collection of meaningful data. The earlier research on the ERP made it clear that the transcripts of the student talk, their email exchanges, and the viewing of the accessed Internet pages represent only limited data. They do not reflect a picture accurate enough to gain deeper understanding of the learning processes. For example, the aural account of student talk recorded with traditional technology (i.e., cassette recorders) does not facilitate linking the talk to specific spelling of words

they may have discussed, or specific information in incoming emails. Access to the multimodality of the Camtasia data is more useful in assisting to gain a fuller picture of student actions since the screen movements and images are consistently accessible. If relevant, student talk can be linked to onscreen images, for example, incoming emails or text which the students created. The comprehensively collected data assisted in gaining insights into the interaction with a) other students, b) the computer as a technical entity and tool, and c) the Internet access as a gateway to information and to CMC (email). Multimodal data facilitated a deeper understanding of student actions.

The comprehensive approach to data collection combined with the methods of GT for the purpose of data analysis and interpretation, opened a window to hidden motivation for behaviour which contradicted the student's talk.

The case study contributed to CALL methodology by taking this combined comprehensive approach to data collection and analysis.

#### 6.2.1 Limitations

The limitations of this study are, to a degree, rooted in the temporal frame of the CALL study. Technology itself represents a central factor contributing to the learning experience and affects the learning outcome. As was shown in chapter 1, technology can be experienced as a novelty or as an ordinary tool like many others at the students' disposal, depending on the application of the specific technology in particular societies at specific moments in time. Furthermore, depending on the students' individual preferences and their view towards technology (from enthusiasm to phobia), the learning experience may be seen as positive or negative, enhancing or hindering.

The students' familiarity with the technology and their generic computer-literacy are changing constantly. Therefore, any potential generalizations based on this particular CALL task would have to be expressed cautiously.

Only ten students participated in the core case study, the L2 output of only four students was looked at in some depth. The small size of the group of participants contributed to its limitations. The qualitative approach in the research methodology and the focus on the explorative case study add to its limitations in the positivistic sense of generalizability and transferability of its findings. However, the case study does not aim for or claim transferability and statistical generalizability in the positivistic sense. Instead, it set out to explore the effectiveness of the task in a qualitative sense, for the purpose of learning in complex collaborative situations.

### 6.2.2 Scope

The study makes a qualitative contribution to considerations of CALL task design. It represents an exploratory case study with high validity.

The findings of this case study can add to the development of CALL theory by contributing to the empirical base of CALL research.

The in-depth qualitative data is rich and delivers informative insights into learner interaction and behaviour while they are involved in such a task. Therefore it is also informative regarding task-design for open CALL tasks. In its specific qualitative approach, the study makes a contribution to the methodology of CALL.

### 6.2.3 Validity

While it is acknowledged that 100% validity cannot be achieved, the research under consideration made every effort "to minimize invalidity and maximize validity" (Manion, Cohen and Morrison 2008:133). Validity can be addressed "through the honesty, depth, richness and scope of the data achieved, the participants approached, the extend of triangulation and the desinterestedness or objectivity of the researcher (Winter 2000)" (as quoted in Manion, Cohen and Morrison 2008:133).

Validity of this research under discussion is underpinned by the reliability of the methods applied to the individual research questions. Furthermore, validity can be ascertained by looking at the whole of the research project: Taking the case of this case study in its entirety, rather than the individual parts of the three research questions, the case of the ERP has also been addressed with the method of triangulation. Above, triangulation referred to individual research questions and to the findings born out of data which had been collected at different moments in time with different methods.

Applied to the whole case of the core case study, triangulation refers to different methods used at the same time in order to assist in explaining "the richness and complexity of human behaviour by studying it from more than one standpoint" (Manion, Cohen and Morrison 2008:141). Triangulation as applied to the whole case consists of the three different approaches to the case as represented in the three research questions: The answers to the three questions reflect whether the ERP can be a useful manifestation of CALL for the purpose of learning content and language, as well as gaining insights into the affordances of the medium used by the participants in order to express their agency.

Taking the perspective of the whole case, validity can therefore be evidenced in the triangulation approach as expressed through the different methods applied to the three research questions.

The validity of case study as a methodology is bound to the framework in which the research is conducted. As Yin (2009) stated, a sound theoretical framework is a requirement for case studies. The case study of the ERP is underpinned by a theoretical framework which is supported by compatible methods, both for data collection, and data analysis and interpretation. The validity of the case study therefore also lies in its constituent parts.

The explications above can be summarized as follows: The research under consideration claims internal validity on the basis of the findings being "sustained by the data" (Manion, Cohen and Morrison 2008:135).

The research reflects construct validity on the basis of embedding "the 'operationalized' forms of the construct" (Manion, Cohen and Morrison 2008:138) in the wider literature, for example, language learning potential as evidenced in language related episodes which are embedded in output theory.

The study's validity is based on triangulation, both in relation to the individual RQs as well as the core case study as a whole. For the first situation, results of earlier ERPs in relation to the individual RQs were used in addition to the findings of the core case study, thereby using more than one method to address the questions. For the latter, the individual RQs represent three approaches to the analysis of the effect and effectiveness of the ERP as a manifestation of open task CALL.

Reliability can be seen as a "precondition of validity" (Manion, Cohen and Morrison 2008:133), with reliability contributing to validity. For qualitative research, reliability "can be regarded as a fit between what researchers record as data and what actually occurs in the natural setting that is being researched, i.e. a degree of accuracy and comprehensiveness of coverage (Bogdan and Biklen 1992:48)" (Manion, Cohen and Morrison 2008:149). Furthermore, qualitative like quantitative research may also benefit from, and aim at, replication of the research (Manion, Cohen and Morrison 2008). This present study reported in some detail on the context in which the case study was set (chapters 1 and 2) and the methods applied for data gathering, data analysis and data interpretation (chapters 3 and 4). By providing this amount of detail, a replication of the study is possible.

Validity and reliability are closely linked concepts which aim to assess the value of research undertaken, and the possibility to apply the findings to situations outside the immediate research situation itself, thereby generalizing the results. These concepts are linked to the research approach taken, and therefore are influenced by the research paradigm in which the individual study is situated (Appendix 11).

### **6.3 Future research**

This explorative case study has brought to light several points which deserve following up in future research.

A surprising finding in relation to student motivation deserves more research into motivational factors. One embedded case story highlighted that hidden motivational factors may have an impact on student behaviour, but the potential intentionality of destructive motivation had gone unnoticed before the in-depth analysis. The unhelpful behaviour of one group had been noticed straight away and had been commented on by students during the debriefing, but the intentionality of the hindrance remained obscured until discovered through analysis of multimodal data. While potential motivational factors had been considered in the task design, student motivation had not been explicitly researched in this study. It would be useful if future research addressed motivational questions beyond the task design level by, for example, conducting individual interviews with all participants after project completion.

This study's findings also encourage more research based on the same methodological framework. The detailed description of the context of the core case study and research methods facilitate a replication of it. Furthermore, the case study's exploratory nature provided results which could be used as a base for the formulation of hypotheses which can then be applied to future research.

A question of interest which deserves more research is the relationship between level of L2 proficiency and successful use of computer tools or the medium's affordances. Previous research has found, for example, a correlation between students accessing learning tools as offered in software options and their subsequent performance (Hegelheimer and Tower 2004). The findings of this study under consideration have highlighted that students do use the computer's affordances to exercise their agency. It would be of interest to investigate any potential causality between the use of the tools and L2 proficiency in open tasks as under discussion here: Does L2 proficiency lead to an increase in using the tools? Or does an increase in use of tools lead to improved proficiency? For example, it could be reasonable to hypothesize that students with a high level of L2 proficiency benefit more from this learning environment and make more frequent use of its affordances than students with lower level L2 proficiency. The outcome of specifically designed research on the basis of this hypothesis could inform future task design.

It would also be useful to direct future research to further application of GT to RQ3 with a view of moving towards a developing theory. Applying the first step of GT to the case under consideration, this thesis has discovered distinct behaviour, but more research is needed in order to enter into the next phase of theoretical

sampling (Glaser and Strauss 2006). In particular, research into ERPs could explore in more depth the developing expert's behaviour and its effect on learning.

A related question is concerned with the effects of student initiated focus on form among advanced L2 learners. Do advanced learners focus on similar forms? Does their focus reflect a preference for directedness towards grammatical forms or lexical items?

The results of this research project can give encouragement to other forms of open task-based computer-assisted learning (CAL) and online role-plays. The findings may well be suitable to inform other collaborative tasks conducted in L1, but otherwise based on the same task design principles as applied to the ERP. It is plausible to consider that tasks based on collaborative construction of knowledge, for example, in business studies, history, politics or geography can show similar general outcomes to this project. Embedding collaborative construction of knowledge and practice of subject-specific skills into electronic role-play tasks facilitates a simultaneous sense of purpose and playfulness of learning, combined with an immediacy of experience which can have the power to captivate students and support their engagement with the task. This kind of learning can prepare students for their future professional lives in a globalized world by finding collaborative solutions to problems based on information which is in continuous flux and changing rapidly.

The scope of the research may therefore not be only bound by the actual case study, but reach beyond. Further research would be of interest which addresses the possible generalizability of findings borne out of similar case studies.

## 7 Bibliography

- ALTMAYER, C., 2003. Konstruktivistische Fremdsprachendidaktik? Ein Kommentar zu Dieter Wolffs Artikel Fremdsprachenlernen als Konstruktion. *Babylonia* 3-4. Available at: <http://ltsc.ph-karlsruhe.de/Altmayer.pdf> [Accessed 4/2009].
- ALTMAYER, C., 2002. Lernstrategien und autonomes Lernen: Teilaspekte eines konstruktivistischen Fremdsprachenunterrichts? *Babylonia* 2, 7-13. Available at: <http://www.babylonia-ti.ch/BABY202/PDF/altmayer.pdf> [Accessed 4/2009].
- APPEL, C., and GILABERT, R., 2002. Motivation and task performance in a task-based web-based tandem project. *ReCALL*, 14(1), 16-31.
- ARNOLD, N., 2007. Reducing foreign language communication apprehension with computer-mediated communication: A preliminary study. *System* 35(2007), 469-486.
- ARNOLD, N., and DUCATE, L., 2006. Future foreign language teachers' social and cognitive collaboration in an online environment [online]. *Language Learning and Technology*, 10(1). 42-66. Available at: <http://llt.msu.edu/vol10num1/arnoldducate/default.html> [Accessed 6/2006]
- ARNOLD, N., DUCATE, L., LOMICKA, L., and LORD, G., 2005. Using CMC to establish social and supportive environments in teacher education. *Calico Journal*, 22(3), 537-567.
- AUSTIN, R., and MENDLICK, F., 1993. E-Mail in modern language development. *ReCall* 9, 19-23.
- AYRES, R., 2002. Learner attitudes toward the use of CALL. *CALL*, 15(3), 241-250.
- BAKHTIN, M., 1981. *The dialogic imagination. Four essays by M.M. Bakhtin*. Austin, TX: University of Texas Press.
- BARR, D., and GILLESPIE, J., 2003. Creating a computer-based language learning environment. *ReCALL*, 15(1), 68-78.
- BARSON, J., 1997. Space, time and form in the project-based foreign language classroom. *In: R. DEBSKI, J. GASSIN and M. SMITH, eds., Language learning through social computing*. Melbourne: Applied Linguistics Association of Australia, 1997, pp. 1-38.
- BARSON, J., FROMMER, J., and SCHWARTZ, M., 1993. Foreign language learning using e-mail in a task-oriented perspective: Interuniversity experiments in communication and collaboration. *Journal of Science Education and Technology*, 4(2), 565-584.
- BARDOVI-HARLIG, K., 2000. *Tense and aspect in second language acquisition: Form, meaning and use*. Oxford: Blackwell Publishers.
- BASSEY, M., 1999. *Case study research in educational settings*. Maidenhead: Open University Press.
- BASTIAENS, T., BOON, T. J., and MARTENS, R., 2004. Evaluating integrated e-learning. *In: W. JOCHEMS, J. van MERRIENBOER, and R. KOPER, eds., Integrated e-learning*.

- Implications for pedagogy, technology and organization*. London and New York: RoutledgeFalmer, 2004, pp. 187-198.
- BAX, S., 2003. CALL – past, present and future. *System*, 31(2003), 13-28.
- BEACH, R., and DOERR-STEVENSON, C., 2009. Learning argument practices through online role-play: Towards a rhetoric of significance and transformation. *Journal of Adolescent & Adult Literacy*, 52(6), 460-48.
- BEATTY, K., 2003. *Teaching and researching computer-assisted language learning*. Harlow: Longman.
- BEAUVOIS, M., 1998. E-Talk: Computer-assisted classroom discussion - attitudes and motivation. In: J. SWAFFAR, et al., eds., *Language learning online. Theory and practice in the ESL and L2 computer classroom*. Austin. Texas: Labyrinth Publication, 1998, pp. 99-120.
- BELZ, J., 2004. Learner corpus analysis and the development of foreign language proficiency. *System* 32(4), 577-591.
- BENSON, P., and LOR, W., 1999. Conceptions of language and language learning. *System*, 27(4), 459-472.
- BENSON, P., 2001. *Teaching and researching autonomy in language learning*. Harlow: Pearson Education Ltd.
- BIGGS, J., and TANG, C., 2007. *Teaching for quality learning at university. What the student does*. 3<sup>rd</sup> ed. Maidenhead: Open University Press.
- BLAKE, R., 2008. *Brave new digital classroom. Technology and foreign language learning*. Washington D.C.: Georgetown University Press.
- BLIN, F., 2004. CALL and the development of learner autonomy: towards an activity-theoretical perspective. *ReCALL*, 16(2), 377-395.
- BLOCH, J., 2007. Abdullah's blogging: A generation 1.5 student enters the blogosphere [online]. *Language Learning and Technology*, 11(2), 128-141.
- BRAMMERTS, H., 1996. Language learning in tandem using the Internet. In: M. WARSCHAUER, ed., *Telecollaboration in foreign language learning: Proceedings of the Hawai'i Symposium*. Honolulu, HI: University of Hawai'i, 1996, pp. 121-130.
- BRITAIN, S., and LIBER, O., 2004. *A Framework for the Pedagogical Evaluation of Virtual Learning Environments* [online]. Joint Information Systems Committee (JISC). Available at: [http://www.jisc.ac.uk/uploaded\\_documents/VLE%20Full%20Report%2006.doc](http://www.jisc.ac.uk/uploaded_documents/VLE%20Full%20Report%2006.doc) [Accessed 5/2010].
- BRYMAN, A., 2004. *Social research methods*. Oxford: Oxford University Press.
- BYGATE, M., SKEHAN, P., and SWAIN, M., eds., 2001. *Researching pedagogic tasks, second language learning, teaching and testing*. London: Longman.
- BYRNES, H., ed., 2006. *Advanced Language Learning. The contribution of Halliday and Vygotsky*. London: Continuum.

- CANNINGS, T., and STAGER, G., 2003. *Online constructionism and the future of teacher education. Conference paper at 'ICT and the Teacher of the Future', University of Melbourne, Australia, Jan. 2003.* Available at: <http://crpit.com/confpapers/CRPITV23Cannings.pdf> [Accessed 11/2009].
- CHAMBERS, A., and DAVIES, G., 2001. *ICT and Language Learning. A European Perspective.* Lisse: Swets & Zeitlinger.
- CHAMBERS, A., and BAX, S., 2006. Making CALL work: Towards normalisation. *System* 34, 465-479.
- CHAPELLE, C., 2004. Technology and second language learning: Expanding methods and agendas. *System*, 32(4), 593-601.
- CHAPELLE, C., 2001. *Computer Applications in Second Language Acquisition. Foundations for teaching, testing and research.* Cambridge: Cambridge University Press.
- CHAPELLE, C., 2000. Is network-based learning CALL? In: M. WARSCHAUER and R. KERN, eds., *Network-based language teaching: Concepts and Practice.* Cambridge: CUP, 2000, pp. 204-228.
- CHAPELLE, C., 1999. Theory and research: Investigation of "authentic" language learning tasks. In: J. EGBERT and E. HANSON-SMITH, eds., *CALL environments. Research, practice and critical issues.* TESOL, 1999, pp. 101-115.
- CHAPELLE, C., 1998. Multimedia CALL: Lessons to be learned from research on instructed SLA [online]. *Language Learning and Technology*, 2(1), 22-34. Available at: <http://llt.msu.edu/vol2num1/article1/> [Accessed 3/2010].
- CHAPELLE, C., 1997. CALL in the year 2000: Still in search of research paradigms? [online]. *Language Learning and Technology*, 1(1), 19-43. Available at: <http://llt.msu.edu/vol1num1/chapelle/default.html> [Accessed 3/2010].
- CHARMAZ, K., 2005. Grounded theory in the 21<sup>st</sup> century. Applications for advancing social justice studies. In: N. DENZIN and Y. LINCOLN, eds., *The Sage handbook of qualitative research.* 3<sup>rd</sup> edition. London: Sage Publications, 2005, pp. 505-536.
- CHARMAZ, K., 2004. Grounded theory. In: S. HESSE-BIBER and P. LEAVY, eds., *Approaches to qualitative research. A reader on theory and practice.* New York / Oxford: Oxford University Press, 2004, pp. 496-521.
- CHEN, N., Hsieh, S., and Kinshuk, 2008. Effects of short-term memory and content representation type on mobile language learning [online]. *Language Learning and Technology*, 12(3), 93-113. Available at: <http://llt.msu.edu/vol12num3/chenetal.pdf> [Accessed 4/2009].
- CHEUNG, A., and HARRISON, C., 1992. Microcomputer adventure games and second language acquisition: A study of Hong Kong tertiary students. *Computers in applied linguistics: An international perspective. Multilingual Matters* 75, 155-178.
- CHUN, D., and PAYNE, J. S., 2004. What makes students click: working memory and look-up behavior. *System*, 32(4), 481-503.

- CHUN, D., and PLASS, J. L., 2000. Networked multimedia environments for second language acquisition. *In: M. WARSCHAUER and R. KERN, eds., Network-based Language Teaching: Concepts and Practice.* Cambridge: CUP, 2000, pp. 151-170.
- CHUN, D., 1998. Using computer-assisted class discussion to facilitate the acquisition of interactive competence. *In: J. SWAFFAR, et al., eds., Language Learning Online. Theory and Practice in the ESL and L2 Computer Classroom.* Austin, Texas: Labyrinth Publication, 1998, pp. 57-80.
- CHUN, D., and PLASS, J. L., 1997. Research on text comprehension in multimedia environments [online]. *Language Learning and Technology*, 1(1), 60-81. Available at: [http://llt.msu.edu/vol1num1/chun\\_plass/default.html](http://llt.msu.edu/vol1num1/chun_plass/default.html) [Accessed 11/2009].
- CLARK, G., 2009. These horses can fly! And other lessons from Second Life: The view of a virtual hacienda. *In: R. OXFORD and J. OXFORD, eds., Second language teaching and learning in the net generation.* Manoa: University of Hawai'i at Manoa, 2009, pp. 153- 172.
- COHEN, L., MANION, L., and MORRISON, K., 2008. *Research methods in education.* London and New York: Routledge.
- COOKE-PLAGWITZ, J., 2009. A new language for the net generation: Why Second Life works for the net generation. *In: R. OXFORD and J. OXFORD, eds., Second language teaching and learning in the net generation.* Manoa: University of Hawai'i at Manoa, 2009, pp. 173-180.
- CLEMENT, R., DÖRNYEI, Z., NOELS, K., 1994. Motivation, self-confidence, and group cohesion in the foreign language classroom. *Language Learning*, 44(3), 417-448.
- COOPER, A., 1999. *The inmates are running the asylum.* Indianapolis: SAMS.
- COLPAERT, J., 2004. *Design of online interactive language courseware: Conceptualization, specification and prototyping. Research into the impact of linguistic-didactic functionality on software architecture.* (PhD thesis). Antwerp:University of Antwerp.
- CROOKES, G., and SCHMIDT, R., 1991. Motivation: Reopening the research agenda. *Language Learning*, 41(4), 469-512.
- DAVIES, G., 2010. *Information and Communication Technology for Language Teachers (ICT4LT)* [online]. Available at: <http://www.ict4lt.org/en/> [Accessed 2/10].
- DAVIES, G., 2001. New technologies and language learning: A suitable subject for research? *In: A. CHAMBERS and G. DAVIES, eds., ICT and language learning. A European perspective.* Lisse: Swets & Zeitlinger, 2001, pp. 13-27.
- DENNEN, V. P., 2000. Task structuring for on-line problem based learning: A case study. *Educational Technology & Society*, 3(3), 329-336.
- DENSCOMBE, M., 2007. *The good research guide.* Maidenhead: Open University Press.
- DeRidder, I., 2003. *Reading from the screen in a second language.* (PhD thesis). Antwerpen-Apeldoorn: Garant.

- DeRidder, I., 2002. Visible or invisible links: Does the highlighting of hyperlinks affect incidental vocabulary learning, text comprehension, and the reading process? [online]. *Language Learning and Technology*, 6(1), 123-146. Available at: <http://llt.msu.edu/vol6num1/DERIDDER/default.html> [Accessed 11/2009].
- DeRidder, I., 2000. Are we conditioned to follow links? Highlights in CALL materials and their impact on the reading process. *Computer Assisted Language Learning*, 13(2), 183-195.
- DeRidder, I., 1999. Are we still reading or just following links? How the highlighting of hyperlinks can influence incidental vocabulary learning. In: K. CAMERON. *CALL & the Learning Community*. Conference proceedings. Exeter: Elm Bank Publications, 1999, pp. 105-116.
- DÖRNYEI, Z., and USHIODA, E., eds., 2009. *Motivation, language identity and the L2 self*. Bristol: Multilingual Matters.
- DÖRNYEI, Z., and USHIODA, E., eds., 2011. *Teaching and researching motivation*. London: Longman.
- DÖRNYEI, Z., 1997. Psychological processes in cooperative language learning: Group dynamics and motivation. *The Modern Language Journal*, 81(iv), 482-493.
- DOUGHTY, C., and WILLIAMS, J., eds., 1998. *Focus on form in classroom second language acquisition*. Cambridge: CUP.
- DOUGHTY, C., and PICA, T., 1986. 'Information gap' tasks: Do they facilitate second language acquisition? *TESOL QUARTERLY*, 20(2), 305-323.
- DRACUP, M., 2009. *Story as a vehicle for learning in online role play: a case study* [online]. AARE 2009 International education research conference. Canberra papers collection. Conference of the Australian Association for Research in Education, 29 Nov - 3 Dec 2009. Available online: <http://www.aare.edu.au/09pap/dra091362.pdf> [Accessed Aug 2010].
- DRACUP, M., 2008. Role play in blended learning: A case study exploring the impact of story and other elements. *Australasian Journal of Educational Technology*, 24(3), 294-310.
- EDWARDS, A., 2001. Researching pedagogy: a sociocultural agenda. *Pedagogy, Culture and Society*, 9(2), 161-185.
- EHRMANN, M., LEAVER, B.L., and OXFORD, R., 2003. A brief overview of individual differences in second language learning. *System*, 31(3), 313-330.
- ELLIS, R., 2010. Foreword. In: M. Thomas and H. Reinders, eds., *Task-based language learning and teaching with technology*. London, New York: continuum, 2010, pp.xvi-xviii.
- ELLIS, R., et al., 2008. The effects of focused and unfocused written corrective feedback in an English as a foreign language context. *System* 36, 353-371.
- ELLIS, R., 2003. *Task-based language learning and teaching*. Oxford: OUP.

- ELLIS, R., BASTURKMEN, H., and LOEWEN, S., 2002. Doing focus-on-form, *System* 30(4), 419-432.
- ELLIS, R., 1999. *Learning a second language through interaction*. Amsterdam/Philadelphia: John Benjamins Publishing Company.
- ELLIS, R., 1985. *Understanding second language acquisition*. Oxford: OUP.
- EUROCALL. 2000. *The history of CALL*. [online]. Available at: [http://www.eurocall-languages.org/resources/history\\_of\\_call.pdf](http://www.eurocall-languages.org/resources/history_of_call.pdf) [Accessed 10/10].
- EUROCALL. 1999. *Joint policy statement with CALICO and IALL* [online]. Available at: [http://www.eurocall-languages.org/research/research\\_policy.html](http://www.eurocall-languages.org/research/research_policy.html) [Accessed 6/2009].
- EUROPEAN COMMISSION REPORT EACEA 2007/9. *Study on the Impact of Information and Communications Technology (ICT) and New Media on Language Learning* [online]. Available at: [http://eacea.ec.europa.eu/llp/studies/study\\_impact\\_ict\\_new\\_media\\_language\\_learning\\_en.php](http://eacea.ec.europa.eu/llp/studies/study_impact_ict_new_media_language_learning_en.php) [Accessed 3/2010].
- FEATHERSTONE, M., 2007. *Consumer culture and postmodernism*. 2<sup>nd</sup> ed. London: Sage.
- FELIX, U., 2008. The unreasonable effectiveness of CALL: What have we learned in two decades of research? *ReCALL Journal*, 20(2), 141-161.
- FELIX, U., 2005. Analysing recent CALL effectiveness research - towards a common agenda. *Computer Assisted Language Learning*, 18(1+2), 1-32.
- FELIX, U., 2003. Pedagogy on the line: identifying and closing the missing link. In: U. FELIX, ed., *Language learning online. Towards best practice*. Lisse: Swets & Zeitlinger, 2003, pp. 147-170.
- FELIX, U., 2002. The web as a vehicle for constructivist approaches to language teaching, *ReCALL*, 14(1), 2-15.
- FERREIRA, M., and Lantolf, J., 2008. A concept-based approach to teaching: Writing through genre analysis. In: J. LANTOLF and M. POEHNER, eds., *Sociocultural theory and the teaching of second languages*. London: Equinox, 2008, pp. 285-320.
- FIORI, M., 2005. The development of grammatical competence through synchronous computer-mediated communication. *CALICO Journal*, 22(3), 567-602.
- FISCHER, G., 1998. *Email in Foreign Language Teaching. Toward the creation of virtual classrooms*. Tübingen: Stauffenburg.
- FLEWITT, R., HAMPEL, R., HAUCK, M., and LANCASTER, L., 2009. Multimodal data collection and transcription. In: Jewitt, C., ed. *The Routledge Handbook of Multimodal Analysis*. London: Routledge, 2009, pp. 40-53.
- FORSTNER, M., 2000. Zwischen globalisierter Kommunikation und kultureller Fragmentierung – zur Rolle der Translatoren in der neuen Informations- und Kommunikations-Welt. In: W. WILSS, ed., 2000. *Weltgesellschaft*,

- Weltverkehrssprache, Weltkultur. Globalisierung versus Fragmentierung.* Tübingen: Stauffenburg, 2000, pp. 139-183.
- de la FUENTE, M., 2003. Is SLA interactionist theory relevant to CALL? A study of the effects of computer-mediated interaction in L2 vocabulary acquisition. *CALL*, 16(1), 47-82.
- GARDNER, R., 1985. *Social psychology and second language learning. The role of attitudes and motivation.* London: Edward Arnold Publishers.
- GARRETT, N., 1995. ICALL and second language acquisition. In: V. HOLLAND, J. KAPLAN and M. SAMS, eds., *Intelligent language tutors: Theory shaping technology.* Mahwah, NY: Lawrence Erlbaum Associates, 1995, pp.345-358.
- GARRISON, D. R., and ANDERSON, T., 2003. *E-learning in the 21. century. A framework for research and practice.* London: RoutledgeFalmer.
- GARRISON, D. R., and VAUGHAN, N., 2008. *Blended learning in higher education. Framework, principles, and guidelines.* San Francisco: Jossey-Bass.
- GASS, S. M., and SELINKER, L., 2009. *Second language acquisition. An introductory course.* 3<sup>rd</sup> ed. New York and London: Routledge.
- GASS, S., 1997. *Input, interaction, and the second language learner.* Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- GASS, S., MACKEY, A., and PICA, T., 1998. The role of input and interaction in second language acquisition. Introduction to the special issue. *The Modern Language Journal*, 82, 299-307.
- GERRING, J., 2007. *Case study research. Principles and practices.* Cambridge: Cambridge University Press.
- GIBSON, J., 1979. *The ecological approach to visual perceptions.* Boston, MA: Houghton Mifflin.
- GILLESPIE, J., and Barr, D., 2002. Resistance, reluctance and radicalism: A study of staff reaction to the adaptation of CALL/C&IT in modern languages departments. *ReCALL*, 14(1), 120-131.
- GLASER, B., and STRAUSS, A., 2006. *The discovery of grounded theory: strategies for qualitative research.* London: Aldine Transaction.
- GLASER, B., and HOLTON, J., 2004. Remodeling grounded theory. *Forum: Qualitative Social Research*, 5 (2), Art. 4. Available at: <http://www.qualitative-research.net/fqs-texte/2-04/2-04glaser-e.pdf> [Accessed 1/2006].
- GLASER, B., 2004. Naturalist inquiry and grounded theory. *Forum: Qualitative Social Research*, 5(1), Art. 7. Available at: <http://www.qualitative-research.net/fqs-texte/1-04/1-04glaser-e.htm> [Accessed 1/2006].
- GLASER, B., 2002. Constructivist grounded theory?. *Forum Qualitative Social Research*, 3(3). Available at: <http://www.qualitative-research.net/fqs-texte/3-02/3-02glaser-e.htm> [Accessed 1/2006].

- GLASER, B., 1992. *Emergence vs forcing. Basics of grounded theory analysis*. Mill Valley, CA: Sociology Press.
- GODWIN-JONES, R., 2003. Emerging technologies: Blogs and wikis - environments for on-line collaboration [online]. *Language Learning and Technology*, 7(2), 12-16.
- GODWIN-JONES, R., 2005. Emerging technologies: Messaging, gaming, peer-to-peer sharing: language learning strategies and tools for the millennial generation [online]. *Language Learning and Technology*, 9(1), 17-22.
- GOMM, R., HAMMERSLEY, M., and FOSTER, P., eds., 2002. *Case study method. Key issues, key texts*. London: Sage.
- GROMIK, N., 2008. EFL learner use of podcasting resources: A pilot study [online]. *JALTCALL*, 4(2), 47-60. Available at: [http://jaltcall.org/journal/articles/4\\_2\\_Gromik.pdf](http://jaltcall.org/journal/articles/4_2_Gromik.pdf) [Accessed 8/2009].
- GUBA, W., and LINCOLN, Y., 2004. Competing paradigms in qualitative research. In: S. HESSE-BIBER and P. LEAVY, eds., *Approaches to qualitative research. A reader on theory and practice*. New York / Oxford: Oxford University Press, 2004, pp. 17-38.
- GUTIÉRREZ, G., 2003. Beyond interaction: The study of collaborative activity in computer-mediated tasks. *ReCALL*, 15(1), 94-112.
- HAMMERLY, H., 1987. The immersion approach: Litmus test of second language acquisition through classroom communication. *The Modern Language Journal*, 71(iv).
- HAMMERLY, H., GOMM, R., and FOSTER, P., 2002. Case study and theory. In: R. GOMM, M. HAMMERSLEY and P. FOSTER, eds., *Case study method. Key issues, key texts*. London: Sage, 2002, pp. 234-255.
- HAMPEL, R., 2009. Training teachers for the multimedia age: developing teacher expertise to enhance online learner interaction and collaboration. *Innovation in language learning and teaching*, 3(1), 35-50.
- HAMPEL, R., 2006. Rethinking task design for the digital age: A framework for language teaching and learning in a synchronous online environment. *ReCALL*, 18(1), 105-121.
- HAMPEL, R., and HAUCK, M., 2006. Computer-mediated language learning: Making meaning in multimodal virtual learning spaces. *JALTCALL*, 2(2), 3-18.
- HAMPEL, R., and STICKLER, U., 2005. New skills for new classrooms: Training tutors to teach languages online. *Computer-assisted Language Learning*, 18(4), 311-326.
- HEGELHEIMER, V., and TOWER, D., 2004. Using CALL in the classroom: Analysing student interactions in an authentic classroom. *System* 32, 185-205.
- HÉMARD, D., and CUSHION, S., 1999. Designing a web-based CALL environment: From access to acceptability. In: K. CAMERON, ed., *CALL & the learning community*. Conference proceedings of the international CALL conference in Exeter, Sept. 1999, Elm Bank Publications, 1999, pp. 169-180.

- HÉMARD, D., 1997. Design principles and guidelines for authoring hypermedia language learning applications. *System*, 25 (1): 9-27.
- HÉMARD, D., and WHITE, L., 1995. Navigation through guide and toolbox: A critical evaluation and a comparative analysis of two hypermedia systems. *Computer Assisted Language Learning*, 8(1), 63-73.
- HESSE-BIBER, S., and LEAVY, P., 2006. *The practice of qualitative research*. Thousands Oaks, CA: Sage Publications.
- HESSE-BIBER, S., and LEAVY, P., eds., 2004. *Approaches to qualitative research: A reader on theory and practice*. New York: Oxford University Press.
- HOVEN, D., 1999. CALL-ing the learner into focus: Towards a learner-centred model. In: R. DEBSKI and M. LEVY, eds., *World CALL: Global Perspectives on Computer-Assisted Language Learning*. Lisse, Netherlands: Swets & Zeitlinger, 1999. pp. 149-68.
- HRASTINSKI, S., and WATSON, J., 2009. *Designing and evaluating an online role play in conflict management* [online]. *Campus-Wide Information Systems*, 26(4), 287-297. Available at: [www.emeraldinsight.com/1065-0741.htm](http://www.emeraldinsight.com/1065-0741.htm) [Accessed Aug. 2010].
- HUBBARD, P., 2008. CALL and the future of language teacher education. *CALICO*, 25(2), 175-188.
- HUBBARD, P., 2005. A review of subject characteristics in CALL research. *Computer Assisted Language Learning*, 18(5), 351-368.
- HUBBARD, P., 2003. A survey of unanswered questions in CALL. *Computer Assisted Language Learning*, 16(3), 141-154.
- HUBBARD, P., 1996. Elements of CALL methodology: Development, evaluation and implementation. In: M. PENNINGTON, ed., *The power of CALL*. Houston, Texas: Athelstan, 1996, pp. 15-32.
- HYLAND, F., 2003. Focusing on form: Student engagement with teacher feedback. *System* 31(2), 217-230.
- IOANNOU-GEORGIU, S., 2005. The Internet and computer-mediated communication. In: J. COLEMAN and J. KLAPPER, eds., *Effective learning and teaching in modern languages*. London and New York: Routledge, 2005, pp. 153-164.
- JA EGLIN, C., 1998. Learners' and instructors' attitudes towards computer-assisted class discussion. In: J. SWAFFAR, et al., eds., *Language learning online. Theory and practice in the ESL and L2 computer classroom*. Austin, Texas: Labyrinth Publication, 1998, pp. 121-138.
- JEON-ELLIS, G., DEBSKI, R., and WIGGLESWORTH, G., 2005. Oral interaction around computers in the project-oriented CALL classroom [online]. *Language Learning and Technology*, 9(3), 121-145. Available at: <http://llt.msu.edu/vol9num3/jeon/default.html> [Accessed May 2006].

- JOCHEMS, W., van MERRIENBOER, J., and KOPER, R., 2004. *Integrated e-learning. Implications for pedagogy, technology and organizations*. London: RoutledgeFalmer, UK.
- JOHNSON, M., 1999. CALL and teacher education: Issues in course design [online]. *CALL-EJ Online*, 1(2), 1999. Available at <http://www.clec.ritsumei.ac.jp/english/callejonline/4-2/johnson.html> [Accessed 10/2005].
- KATZ, S., and LESGOLD, A., The role of the tutor in computer-based collaborative learning situations. In: P. LAJOIE, S. DERRY, eds., *Computers as cognitive tools*. Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1993, pp. 289-317.
- KAUFMAN, D., 2004. Constructivist issues in language learning and teaching. *Annual Review of Applied Linguistics*, 24, 303-319.
- KERN, R., WARE, P., and WARSCHAUER, M., 2008. Network-based language teaching. In: N. V. DEUSEN-SCHOLL and N. H. HORNBERGER, eds., *Encyclopedia of language and education* (Vol. 4: Second and foreign language education), 2nd ed., New York: Springer, 2008, pp. 281-292.
- KERN, R., WARE, P., and WARSCHAUER, M., 2004. Crossing frontiers: New directions in online pedagogy and research [online]. *Annual Review of Applied Linguistics* 24, 243-260. Available at: <http://www.gse.uci.edu/markw/frontiers.pdf> [Accessed 4/2009].
- KIRSCHNER, P., STRIJBOS, J.-W., and KREIJNS, K., 2004. Designing integrated collaborative e-learning. In: W. JOCHEMS, J. van MERRIENBOER, R. KOPER, eds. *Integrated E-Learning. Implications for pedagogy, technology and organization*. London / New York: RoutledgeFalmer, 2004, pp. 24-38.
- KOHN, K., 2009. Computer-assisted foreign language learning. In: K. KNAPP and B. SEIDELHOFER, eds., *Foreign language communication and learning. Handbooks for applied linguistics*, Volume 6. 2009 [manuscript from the author, 29 pages].
- KRAMSCH, C., 2004. *Language acquisition and language socialization. Ecological perspectives*. 2<sup>nd</sup> ed. London/New York: continuum.
- KRAMSCH, C., 2000a. Second language acquisition, applied linguistics, and the teaching of foreign languages. *The Modern Language Journal*. 84(3), 311-326.
- KRAMSCH, C., A'NESS, F., and LAM, E., 2000. Authenticity and authorship in the computer-mediated acquisition of L2 literacy [online]. *Language Learning and Technology*, 4(2), 78-104.
- KRASHEN, S., 1985. *The input hypothesis: issues and implications*. Harlow: Longman.
- LAM, Y., and LAWRENCE, G., 2002. Teacher – student role redefinition during a computer-based second language project: Are computers catalysts for empowering change? *CALL*, 15(3), 295-315.

- LAMY, M., and HAMPEL, R., 2007. *Online communication in language learning and teaching*. Basingstoke: Palgrave.
- LANGUAGE LEARNING AND TECHNOLOGY [online journal]. Available at: <http://llt.msu.edu/> [Accessed 1/2011]
- Special issue: Reading 11(3), 2007.
- Special issue: Listening 11(1), 2007.
- Special issue: Writing 12(2), 2008.
- Special issue: Grammar 13(1), 2009.
- Special issue: Pronunciation 13(3), 2009.
- Special issue: Vocabulary learning 14(2), 2010.
- LANTOLF, J., and POEHNER, M., eds., 2008a. *Sociocultural theory and the teaching of second languages*. London: Equinox.
- LANTOLF, J., and POEHNER, M., 2008b. Introduction to sociocultural theory and the teaching of second languages. In: J. LANTOLF and M. POEHNER, eds., *Sociocultural theory and the teaching of second languages*. London: Equinox, 2008, pp. 1-32.
- LANTOLF, J., 2006. Re(de)fining language proficiency in light of the concept of 'languaculture'. In: H. BYRNES, ed., *Advanced Language Learning. The contribution of Halliday and Vygotsky*. London: Continuum, 2006, pp 72-94.
- LANTOLF, J., 2000. Introducing sociocultural theory. In: J. LANTOLF, ed., *Sociocultural theory and second language learning*. Oxford: OUP, 2000, pp. 1-26.
- LANTOLF, J., ed., 1994. Sociocultural theory and second language learning: Special Issue, *Modern Language Journal* 78(4), 418-420.
- LARSEN-FREEMAN, D., and LONG. M., 1991. *An introduction to second language acquisition research*. London: Longman Group UK Ltd.
- LAUFER, B., and HILL, M., 2000. What lexical information do L2 learners select in a CALL dictionary and how does it affect word retention? [online]. *Language Learning and Technology*, 3(2), 58-76. Available at: <http://llt.msu.edu/vol3num2/laufer-hill/index.html> [Accessed 6/2005].
- LAURILLARD, D., 2002. *Rethinking university teaching. A conversational framework for the effective use of learning technologies*. 2<sup>nd</sup> edition. London: Routledge / Falmer.
- LEAHY, C., 2008. Learner activities in a collaborative CALL task. *Computer Assisted Language Learning*, 21(3), 253-268.
- LEAHY, C., 2006. Introducing ICT to teachers of an institution-wide language programme: Principle considerations. *JALTCALL*, 2(3). Available at: [http://jaltcall.org/journal/articles/2\\_3\\_Leahy.pdf](http://jaltcall.org/journal/articles/2_3_Leahy.pdf) [Accessed 12/09].
- LEAHY, C., 2004a. Researching language learning processes in open CALL settings for advanced learners. *Computer Assisted Language Learning*, 17(3-4), 289-313.
- LEAHY, C., 2004b. Observations in the computer room: L2 output and learner behaviour, *ReCALL*, 16(1), 124-144.

- LEAHY, C., 2001a. Bilingual negotiation via email. An international project. *Computer Assisted Language Learning*, 14(1), 15-42.
- LEAHY, C., 2001b. Electronic role-play as a means for construction of knowledge online. *In: K. CAMERON, ed., CALL & the challenge of change. Research & practice.* Conference proceedings of international CALL conference in Exeter, Sept. 2001, Elm Bank Publications, 2001, pp.185-191.
- Leahy, C., 2001c. Considerations regarding the use of CALL in the teaching and learning process: Challenges and opportunities. *Innovations*. 5, 61-70.
- LEAHY, C., 2000. Motivational factors and student attitudes in language specific classes with advanced learners of German [online]. *German as a Foreign Language*. 3/2000. Available at: <http://www.gfl-journal.de/3-2000/leahy.html> [Accessed 11/2009].
- LEAHY, C., 1999. Email as a Learning Tool: Construction of Knowledge Online. *In: K. CAMERON, ed., CALL & the learning community.* Conference proceedings of the international CALL conference in Exeter, Sept. 1999, Elm Bank Publications, 1999, pp. 291-299.
- LEAHY, C., 1998. Student centred legal language study. *Computer Assisted Language Learning*, 11(3), 289-308.
- LEE, L., 2008. Focus-on-form through collaborative scaffolding in expert-to-novice online interaction [online]. *Language Learning and Technology*, 12(3), 53-72. Available at: <http://llt.msu.edu/vol12num3/lee.pdf> [Accessed 10/2008].
- LEVERAGE homepage, 1999. Available at: <http://greco.dit.upm.es/~leverage/> [Accessed 2/08].
- LEVERAGE News No 4, July 1998. Available at: <http://greco.dit.upm.es/~leverage/levnews/news4.htm> [Accessed 7/2010].
- LEVY, M., and STOCKWELL, G., 2006. *CALL Dimensions. Options and issues in computer-assisted language learning.* Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- LEVY, M., 2006. Effective use of CALL technologies: Finding the right balance. *In: R. DONALDSON and M. HAGGSTROM, eds., Changing language education through CALL.* Abingdon: Routledge, 2006, pp.1-18.
- LEVY, M., and HUBBARD, P., 2005. Why call CALL "CALL"? *Computer Assisted Language Learning*, 18(3), 143-149.
- LEVY, M., 2000. Scope, goals and methods in CALL research: questions of coherence and autonomy. *ReCALL*, 12(2), 170-195.
- LEVY, M., 1997a. *Computer-Assisted Language Learning: Context and Conceptualization.* Oxford: Clarendon Press.
- LINCOLN, Y., and GUBA, E., 2002. The only generalization is: There is no generalization. *In: R. GOMM, M. HAMMERSLEY and P. FOSTER, eds., Case study method.* London: Sage, 2002, pp. 27-44.

- LITTLE, D., and BRAMMERTS, H., eds., 1996. *A guide to language learning via the Internet*. Dublin: Trinity College, CLCS Occasional Paper No. 46.
- Little, D., and Ushioda, E., 1997a. *International e-mail tandem network, Telematics for autonomous and intercultural tandem learning*. A report on the pilot phase of the sub-project to evaluate tandem language learning via e-mail and MOOs (1996-7), August 1997.
- Little, D., and Ushioda, E., 1997b. Designing, implementing and evaluating a project in tandem language learning via e-mail; unpublished paper of contribution to EuroCall conference in Dublin, September 1997.
- LITTLEMORE, J., 2002. Setting up a course in ICT for language teachers: Some essential considerations. *CALL-EJ Online*, 4(1). (13 pages).
- LITTLEMORE, J., 2001. Learner autonomy, self-instruction and new technologies in language learning: Current theory and practice in higher education in Europe. In: A. CHAMBERS and G. DAVIES, eds., *ICT and language learning. A European perspective*. Amsterdam: Swets and Zeitlinger, 2001, pp. 39-52.
- LIU, T.- C., 2010. Developing simulation-based computer assisted learning to correct students' statistical misconceptions based on cognitive conflict theory, using "Correlation" as an example. *Educational Technology & Society*, 1(2), 180–192. Available via <http://www.ifets.info/others/> [Accessed Aug 2010].
- LIU, T.-C., PENG, H., WU, W.-H., and LIN, M.-S., 2009. The effects of mobile natural-science learning based on the 5E learning cycle: A case study. *Educational Technology & Society*, 12(4), 344–358. Available at: [http://www.ifets.info/journals/12\\_4/29.pdf](http://www.ifets.info/journals/12_4/29.pdf) [Accessed Aug 2010].
- LoCASTRO, V., 2001. Individual differences in second language acquisition: Attitudes, learner subjectivity, and L2 pragmatic norms. *System* 29(1), 69-89.
- LOMICKA, L., 1998. To gloss or not to gloss: An investigation of reading comprehension [online]. *Language Learning and Technology*, Vol 1(2): 41-50. Available at: <http://llt.msu.edu/vol1num2/article2/default.html> [Accessed 11/2009].
- LONG, M., and ROBINSON, P., 1998. Focus on form. Theory, research and practice. In: C.DOUGHTY and J. WILLIAMS, eds., *Focus on form in classroom second language acquisition*. Cambridge: CUP, 1998, pp. 15- 41.
- LONG, M., 1997. Focus on form in task-based language teaching [online]. Fourth annual McGraw-Hill satellite teleconference. Available at <http://www.mhhe.com/socscience/foreignlang/top.htm> [Accessed 8/2009].
- LONG, M., 1996. The role of linguistic environment in SLA. In: W. RITCHIE, and T. BHATIA, eds., *Handbook of second language acquisition*. San Diego: Academic Press, 1996, pp. 413-468.
- LONG, M., 1981. Input, interaction, and second language acquisition. *Annals of the New York Academy of Sciences*, 379, 259-278.

- LUND, A., and SMØRDAL, O., 2006. *Is there a space for the teacher in a wiki?* [online]. Proceedings of the 2006 International Symposium on wikis (WikiSym 2006), 37-46, Odense, Denmark: ACM Press. Available at: <http://www.wikisym.org/ws2006/proceedings/p37.pdf> [Accessed Jan 2010].
- LUND, A., 2003. *The teacher as interface. Teachers of EFL in ICT-rich environments: beliefs, practices, appropriation* (PhD) [online]. Oslo, Norway: University of Oslo, Faculty of Arts & the Department of Teacher Education and School Development. Available at <http://www.ils.uio.no/forskning/pdh-drgrad/doktoravhandling/docs/AndreasLund-avhandling.pdf> [Accessed 11/2008].
- MCCARTHY, M., 2006. *Cambridge grammar of English*. Cambridge: CUP.
- McNIFF, J., and WHITEHEAD, J., 2009. *Doing and writing action research*. London: Sage.
- MAGNAN, S., 2008. The unfulfilled promise of teaching for communicative competence: Insights from sociocultural theory. In: J. LANTOLF and M. POEHNER, eds., *Sociocultural theory and the teaching of second languages*. London: Equinox, 2008, pp. 349-379.
- MAK, B., and CONIAM, D., 2008. Using wikis to enhance and develop writing skills among secondary school students in Hong Kong. *System*, 36(2008), 437-455.
- MASON, J., 2003. *Qualitative researching*. 2<sup>nd</sup> ed. London: Sage.
- MATTHIESSEN, C., 2006. Educating for advanced foreign language capacities: exploring the meaning-making resources of languages systematic-functionally. In: H. BYRNES, ed., 2006. *Advanced language learning. The contribution of Halliday and Vygotsky*. London: Continuum, 2006, pp. 31- 57.
- MAYER, R., ed., 2005. *The Cambridge handbook of multimedia learning*. Cambridge: CUP.
- MESKILL, C., and ANTHONY, N., 2005. Foreign language learning with CMC: Forms of online instructional discourse in a hybrid Russian class. *System*, 33, 89-105.
- MESKILL, C., MOSSOP, J., DiANGELO, S., and PASQUALE, R., 2002. Expert and novice teachers talking technology: Precepts, concepts and misconcepts [online], *Language Learning and Technology*, 6(2), 46-57. Available at: <http://llt.msu.edu/vol6num3/meskill/default.html> [Accessed 10/2005].
- MESKILL, C., and RANGLOVA, K., 2000. Sociocollaborative language learning in Bulgaria. In: M. WARSCHAUER and R. KERN, eds., *Network-based language teaching: concepts and practice*. Cambridge: CUP, 2000, pp. 20-40.
- MITCHELL, R., and MYLES, F., 2004. *Second language learning theories*. 2<sup>nd</sup> ed. London: Hodder Arnold.
- MOTTERAM, G., and THOMAS, M., 2010. Afterword: Future directions for technology-mediated tasks. In: M. Thomas and H. Reinders, eds., *Task-based language learning and teaching with technology*. London, New York: continuum, 2010, pp. 218-237.

- MURRAY, D., 2000. Changing technologies, changing literacy communities [online]. *Language Learning and Technology*, 4(2), 43-58. Available at: <http://llt.msu.edu/vol4num2/murray/default.html> [Accessed 6/2005].
- MURRAY, D., 1999. Access to information technology: Considerations for language educators. *Prospect*, 14(3), 4-12.
- NATIONAL BOARD for PROFESSIONAL TEACHING STANDARDS. 1998. Washington, DC. Available at: [http://www.intime.uni.edu/model/Portuguese\\_Model/Teacher/teac4.html](http://www.intime.uni.edu/model/Portuguese_Model/Teacher/teac4.html) [Accessed March 2009]
- NIE, N., and ERBRING, L., 2000. *Internet and society, a preliminary report*. Stanford Institute for the Quantative Study of Society, Feb. 2000. Available at: <http://www.stanford.edu/group/siqss/> [Accessed 5/2007].
- NIÑO, A., 2009. Internet and language teaching/learning: Reflections on online emerging technologies and their impact on foreign language instruction. In: R. OXFORD and J. OXFORD, eds., *Second language teaching and learning in the net generation*. Manoa: University of Hawai'i at Manoa, 2009, pp. 23-30.
- NOTTINGHAM TRENT UNIVERSITY, 2007. Strategic Plan 2004-2010. Available at: [http://www.ntu.ac.uk/about\\_ntu/strategy/strategic\\_plan/index.html](http://www.ntu.ac.uk/about_ntu/strategy/strategic_plan/index.html) [Accessed 9/2009].
- NOTTINGHAM TRENT UNIVERSITY, [no date]. ILTES (Institutional Learning and Teaching Enhancement Strategy 2006-2010). Available at: <http://www.ntu.ac.uk/CASQ/quality/strategy/57717.doc> [Accessed 7/2009].
- NUNAN, D., 1996. Issues in SLA research: Examining substance and procedure. In: W. RITCHIE and T. BHATIA, eds., *Handbook of second language acquisition*. San Diego: Academic Press, 1996, pp. 349-374.
- NUNAN, D., 1999. A foot in the world of ideas: Graduate study through the Internet [online]. *Language Learning and Technology*, 3(1), 52-74. Available at: <http://llt.msu.edu/vol3num1/nunan/> [Accessed 6/2001].
- OBLINGER, S., and OBLINGER, J., eds. 2005. *Educating the net generation*. EDUCAUSE. Available at: <http://www.educause.edu/educatingthenetgen> [Accessed Nov 2008].
- O'BRYAN, A., 2008. Providing pedagogical learner training in CALL: Impact on student use of language-learning strategies and glosses. *CALICO Journal*, 26(1), 142-159.
- OXFORD, R. and OXFORD, J., eds., 2009. *Second language teaching and learning in the net generation*. Manoa: University of Hawai'i at Manoa.
- OXFORD, R. 2009. The influence of technology on second language writing. In: R. OXFORD and J. OXFORD, eds., *Second language teaching and learning in the net generation*. Manoa: University of Hawai'i at Manoa, 2009, pp. 85-100.
- OXFORD, R., and SHEARIN, G., 1994. Language learning motivation: Expanding the theoretical framework. *The Modern Language Journal*, 78(1), 12-28.

- PEARSALL, J., ed. 2001. *The concise Oxford dictionary*. 10<sup>th</sup> ed. Oxford: Oxford University Press.
- PELLETIERI, J., 2000. Negotiation in cyberspace: The role of chatting in the development of grammatical competence. *In: M. WARSCHAUER and R. KERN, eds., Network-based language teaching: Concepts and practice*. Cambridge: CUP, 2000, pp. 59-86.
- PENNINGTON, M., 1996. *The power of CALL*. Houston, TX: Athelstan.
- PICA, T., 2000. Tradition and transition in English language teaching methodology. *System*, 28(1), 1-18.
- PICA, T., 1991. Classroom interaction, negotiation, and comprehension: Redefining relationships. *System* 19(4), 437-452.
- PICA, T., et al. 1989. Comprehensible output as an outcome of linguistic demands on the learner. *SSLA*, 11, 63-90.
- PLASS, J., and JONES, L., 2005. Multimedia learning in second language acquisition. *In: R. MAYER, ed., 2005. The Cambridge handbook of multimedia learning*. Cambridge: CUP, 2005, pp. 467-488.
- PUJOLÀ, J.-T., 2002. CALLing for help: researching language learning strategies using help facilities in a web-based multimedia program. *ReCALL*, 14(2), 235-262.
- RABY, F., 2010. An ergonomic approach to CALL motivation: an ergonomic polytomic and weighted construct. Keynote speech at the XIV. International CALL Conference in Antwerp: Motivation and beyond, University of Antwerp, Aug 2010. [Written script of talk was emailed to me in private correspondence with the author].
- RADWAN, A., 2005. The effectiveness of explicit attention to form in language learning, *System* 33, 69-87.
- RAITMAN, R., AUGAR, N., and ZHOU, W., 2005. Employing wikis for online collaboration in the e-learning environment: Case study [online]. Proceedings of the third international conference on information technology and applications (ICITA'05). Sydney, 4-7 July 2005. Available at: <http://didactique-hec.pbworks.com/f/RaitmanAugarZhou.pdf> [Accessed 2/2010].
- RICHARD, C., 2000. Hypermedia, Internet communication, and the challenge of redefining literacy in the electronic age [online]. *Language Learning and Technology*, 4(2), 59-77. Available at: <http://llt.msu.edu/vol4num2/richards/default.html> [Accessed 10/03].
- RICHARDS, K., 2006. 'Being the teacher': identity and classroom conversation. *Applied Linguistics*, 27(1), 51-77.
- RITCHIE, W., and BHATIA, T., 1996. *Handbook of second language acquisition*. San Diego: Academic Press.

- RITTER, M., and RÜSCHOFF, B., 2000. Perspektiven technologiebereicherter Lernwelten für das Sprachenlernen [online]. Was accessible at: <http://www.uni-essen.de/anglistik/perstech.htm> [Accessed Jan. 2002].
- SAEED, N., YANG, Y., and SINNAPPAN, S., 2009. Emerging web technologies in Higher Education: A case of incorporating blogs, podcasts, and social bookmarks in a web programming course based on students' learning styles and technology preferences. *Educational Technology & Society*, 12(4), 98-109.
- ST. JOHN, E., and CASH, D., 1995. German language learning via e-mail: a case study. *ReCALL*, 7(2), 47-51.
- SCHELLENS, T., and VALCKE, M., 2006. Fostering knowledge construction in university students through asynchronous discussion groups. *Computers & Education*, 46, 349-370.
- SCHINKE-LLANO, L., 1993. On the value of a Vygotskian framework for SLA theory and research. *Language Learning*, 43(1), 121-129.
- SCHRÖDER, J., 2004. *Interkulturalität als Grundlage moderner Fremdsprachenmethodik und -didaktik. Konzepte und Übungsformen für den Unterricht Deutsch als Fremdsprache am Beispiel Wirtschaftsdeutsch in China*. PhD thesis, Universität Trier, Germany. [no longer available online; Accessed 7/2006]
- SERCU, L., and PETERS, E., 2002. Learning e-learning – a comprehensive investigation of course developers' and language teacher trainees' views regarding the usefulness and effectiveness of a multimedia self-tuition course. *ReCALL*, 14(1), 32- 46.
- SHEHADE, A., 2003. Learner output, hypothesis testing, and internalising linguistic knowledge. *System* 31, 155-171.
- SHIELD, L., WEININGER, M.J., and DAVIES, L.B., 2000. What is there to do in a MOO? Fine tuning active learning [online], *HabITat* (Newsletter of the CTI for the Built Environment) 8, 41-44. Available at: <http://cebe.cf.ac.uk/learning/habitat/HABITAT8/mootal.pdf>. [Accessed 4/2009].
- SHIELD, L., WEININGER, M.J., and DAVIES, L.B., 1999a. MOOing in L2: Constructivism and developing learner autonomy for technology-enhanced language learning [online], *C@lling Japan*, 8(3). Also available at: [http://jaltcall.org/cjo/10\\_99/moooin.htm](http://jaltcall.org/cjo/10_99/moooin.htm) [Accessed 3/2009].
- SHIELD, L., WEININGER, M.J., and DAVIES, L.B., 1999 b. A task-based approach to using MOO for collaborative language learning. *In: K. CAMERON, ed., CALL & the learning community*. Conference proceedings of the international CALL conference in Exeter, Sept. 1999, Elm Bank Publications, 1999, pp. 391-401.
- SHIELD, L., WEININGER, M.J., and DAVIES, L.B., 1998. Virtually there: Collaboration, ComMOOnity and ReTOOLing text-based virtual reality [online], *Software for Engineering Education* (Newsletter of the CTI for Engineering) 14, 29-35.

- Available at: <http://www.ltsneng.ac.uk/downloads/pdfs/news/nl14.pdf>. [Accessed 3/2009].
- SKEHAN, P., 2003. Focus on form, tasks, and technology, *CALL* 16(5), 391-411.
- SKEHAN, P., 1998. *A cognitive approach to language learning*. Oxford: Oxford University Press.
- SKEHAN, P., 1996. A framework for the implementation of task-based onstruction. *Applied Linguistics*, 17(1), 38-62.
- SKOWRONEK, S., and KIND, C., 1997. Sprachenlernen und interkulturelles Lernen via Videokonferenz und Internet? Das transatlantische Seminar – ein Pilotprojekt. *Fremdsprachenunterricht*, 41/50, 273-277.
- SOMEKH, B., 2007. *Pedagogy and learning with ICT: Researching the art of innovation*. London: Routledge.
- STAKE, R., 2005. Qualitative case studies. In: N. DENZIN and Y. LINCOLN, eds., *The Sage handbook of qualitative research*. 3<sup>rd</sup> ed. London: Sage Publications, 2005, pp. 443-466.
- STAKE, R., 1995. *The art of case study research*. London: Sage publication.
- STEPP-GREANY, J., 2002. Student perceptions on language learning in a technological environment: Implications for the new millennium [online]. *Language Learning and Technology*, 6(1), 165-180. Available at: <http://llt.msu.edu/vol6num1/pdf/steppgreany.pdf> [Accessed Oct. 2005].
- STOCKWELL, G., 2010b. Effects of multimodality in computer-mediated communication tasks. In: M. Thomas and H. Reinders, eds., *Task-based language learning and teaching with technology*. London, New York: continuum, 2010, pp. 83-104.
- STOCKWELL, G., 2010a. Using mobile phones for vocabulary activities: Examining the effect of platform [online]. *Language Learning and Technology*, 14(2), 95-110. Available at: <http://llt.msu.edu/vol14num2/stockwell.pdf> [Accessed 6/2010].
- STOCKWELL, G., 2009. Teacher education in CALL: teaching teachers to educate themselves. *Innovation in language learning and teaching*, 3(1), 99-112.
- STOCKWELL, G., 2007. A review of technology choice for teaching language skills in the CALL literature. *ReCALL*, 19(2), 105-120.
- STOCKWELL, G., and HARRINGTON, M., 2003. The incidental development of L2 proficiency in NS-NNS email interactions. *CALICO Journal*, 20(2), 337-359.
- SULLIVAN, N., 1998. Developing critical reading and writing skills: Empowering minority students in a networked computer classroom. In: J. SWAFFAR, et al., eds., *Language learning online. Theory and practice in the ESL and L2 computer classroom*. Austin. Texas: Labyrinth Publication, 1998, pp. 41-55.
- SWAIN, M., 2006. Linguaging, agency and collaboration in advanced second language proficiency. In: H. BYRNES, ed., 2006. *Advanced language learning. The contribution of Halliday and Vygotsky*. London: continuum, 2006, pp. 95-108.

- SWAIN, M., and LAPKIN, S., 2001. Focus on form through collaborative dialogue: Exploring task effects. *In: M. Bygate, P. Skehan and M. Swain. eds. Researching pedagogic tasks, second language learning, teaching and testing.* London: Longman, 2001, pp. 99-111.
- SWAIN, M., 2000. The output hypothesis and beyond: Mediating acquisition through collaborative dialogue. *In: J. LANTOLF, ed., 2000. Sociocultural theory and second language learning.* Oxford: OUP, 2000, pp. 97-114.
- SWAIN, M., 1995. Three functions of output in second language learning. *In: G. COOK and B. SEIDLHOFER, eds., Principle and practice in the study of language.* Oxford: OUP, 1995, pp. 125-144.
- SWAIN, M., and LAPKIN, S., 1995. Problems in output and the cognitive processes they generate: A step towards second language learning. *Applied Linguistics*, 16(3), 371-391.
- SWAIN, M., 1993. The output hypothesis: Just speaking and writing aren't enough. *Canadian Modern Language Review*, 50(1), 158-164.
- SWIFT, E., 2010. Losing the plot – an exploration of narrative collaboration and control in Second Life. *International Journal of Performance Arts and Digital Media*, 6(2), 171-192.
- TAMMELIN, M., 2004. *Introducing a collaborative network-based learning environment into foreign language and business communication teaching. Action research in Finnish Higher Education.* University of Helsinki, Faculty of Behaviour Sciences, Department of Applied Sciences of Education. PhD thesis, August 2004. Available at: <http://ethesis.helsinki.fi/julkaisut/kay/sovel/vk/tammelin/> [Accessed 1/2008].
- TELLA, S., 1991. *Introducing international communications networks and electronic mail into foreign language classrooms.* Research report 95. Helsinki: University of Helsinki. Available at: <http://www.helsinki.fi/~tella/95.pdf> [Accessed 8/2006].
- TELLA, S., 1992a. *Boys, girls and e-mail: A case study in Finnish senior secondary schools.* Research report 110, Helsinki: University of Helsinki. Available at: <http://www.helsinki.fi/~tella/cv.html> [Accessed 6/2006].
- TELLA, S., 1992b. *Talking shop via e-mail: A thematic and linguistic analysis of electronic mail communication.* Research report 99, Helsinki: University of Helsinki. Available at: <http://www.helsinki.fi/~tella/cv.html> [Accessed 6/2008].
- Underwood, J., 1997. *Integrated learning systems. Potential into practice.* Oxford: Heinemann.
- UNDERWOOD, J., CAVENDISH, S., and LAWSON, T., 1996. Are integrated learning systems good for teachers too? *Journal of Information Technology for Teacher Education*, 5(3), 207-218.
- USHIODA, E., 1996. *Learner autonomy 5. The role of motivation.* Dublin: Authentik Language Learning Resources.

- USHIODA, E., 2010. L2 motivation, self and identity: Current theoretical perspectives. Keynote speech at the XIV. International CALL Conference in Antwerp: Motivation and beyond, University of Antwerp, Aug 2010.
- VAN LIER, L., 2008. Agency in the classroom. *In: J. LANTOLF and M. POEHNER, eds., Sociocultural theory and the teaching of second languages*. London: Equinox, 2008, pp. 163-186.
- VAN LIER, L., 2004. An ecological-semiotic perspective on language and linguistics. *In: C. KRAMSCH, Language acquisition and language socialization. Ecological perspectives*. 2<sup>nd</sup> ed. London/New York: Continuum, 2004, pp. 140-164.
- VAN LIER, L., 2000. From Input to affordance: social-interactive learning from an ecological perspective. *In: J. LANTOLF, ed., Sociocultural theory and second language learning*. Oxford: OUP, 2000, pp. 245-259.
- VANSTEENKISTE, M., 2010. Dynamics of autonomy and control and optimal learning: Quality of motivation matters. Keynote speech at the XIV. International CALL Conference in Antwerp: Motivation and beyond, University of Antwerp, Aug 2010. Available at: <http://webh01.ua.ac.be/linguapolis/call2010/CALL%20presentation%20-%20Maarten%20Vansteenkiste.pdf> [Accessed 9/2010].
- VANSTEENKISTE, M., et al. 2009. Motivational profiles from a self-determination perspective: The quality of motivation matters. *Journal of Educational Psychology*, 101(3), 671-688.
- VILMI, R., *Helsinki University of Technology E-Mail Writing Project*. *In: A. GIMENO, ed., EuroCALL Conference Proceedings*, Sept. 1995, pp. 469-486.
- VYGOTSKY, L. S., 1978. *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- WAHRIG, G., 1997. *Deutsches Wörterbuch*. 6<sup>th</sup> ed., Gütersloh: Bertelsmann Lexikon Verlag.
- WARSCHAUER, M., 2004b. Technological change and the future of CALL. *In: S. FOTOS and C. BROWN, eds., New perspectives on CALL for second and foreign language classrooms*. Mahwah, NJ: Lawrence Erlbaum Associates, 2004, pp. 15-25.
- WARSCHAUER, M., 2004a. Technology and writing. *In: C. DAVIDSON and J. CUMMINS, eds., Handbook of English language teaching*. Kluwer: Dordrecht, Netherlands. Available at: <http://www.gse.uci.edu/faculty/markw/technology.pdf> [Accessed 5/2005].
- WARSCHAUER, M., 2000b. The death of cyberspace and the rebirth of CALL. *English Teachers' Journal*, 53, 61-67.
- WARSCHAUER, M., and KERN, R., eds., 2000. *Network-based language teaching: Concepts and practice*. Cambridge: CUP.
- WARSCHAUER, M., SHETZER, H., and MELONI, C., 2000. *Internet for English teaching*. Alexandria, Virginia, USA: Teachers of English for Speakers of other languages, Inc.

- WARSCHAUER, M., 1999. *Electronic literacies. Language, culture and power in online education*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- WARSCHAUER, M., 1998b. Interaction, negotiation, and computer-mediated learning [online]. Was available at: <http://www.insa-lyon.fr/Departements/CDRL/interaction.html> [Accessed 7/03].
- WARSCHAUER, M., 1997. Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal*, 81(iv), 470-481.
- WEBB, M., and COX, M., 2004. A review of pedagogy related to information and communication technology. *Technology, Pedagogy and Education*, 13(3), 235-286.
- WHITE, L., 1987. Against comprehensible input: The input hypothesis and the development of second-language competence. *Applied Linguistics*, 8/1987, 95-110.
- WILLIS, J., 2004. *A framework for task-based learning*. 8<sup>th</sup> ed. Harlow: Longman.
- WOLFF, D., 2002. Fremdsprachenlernen als Konstruktion: Einige Anmerkungen zu einem viel diskutierten neuen Ansatz in der Fremdsprachendidaktik. *Babylonia* 4/02, Available at: <http://www.babylonia-ti.ch/BABY402/woolfde.htm> [Accessed 4/2009].
- YANG, S.-C., and CHEN, Y.-J., 2007. Technology-enhanced language learning: A case study. *ScienceDirect. Computers in Human Behavior*, 23, 860-879.
- YIN, R., 2009. *Case study research. Design and methods*. 4th ed. London: Sage Publications.
- ZÄHNER, C., FAUVERGE, A., and WONG, J., 2000. Task-based language learning via audiovisual networks - The LEVERAGE Project. In: M. WARSCHAUER and R. KERN, eds., *Network-based language teaching: concepts and practice*. Cambridge: CUP, 2000, pp. 186-2003.
- ZHAO, S., and BITCHENER, J., 2007. Incidental focus on form in teacher-learner and learner-teacher interactions. *System*, 35, 431-447.
- ZHAO, Y., 2001. Recent developments in technology and language learning: A literature review and meta-analysis [online]. *E-Language Learning System*. Available at: <http://ott.educ.msu.edu/elanguage/about/literature.asp> [Accessed 5/2006].
- ZHAO, Y., 2003. Recent developments in technology and language learning: A literature review and meta-analysis. *CALICO Journal*, 21(1), 7-27.

**CALL related PhD theses** from 2000 onwards, mainly acquired in US universities:  
<http://llt.msu.edu/calltheses.html>

## 8 Appendices

---

### 8.1 Appendix 1 The 6 different ERPs

---

6 ERPs which were used in class over a period of 7 years

	<b>Year</b>	<b>length of project</b>	<b>Chosen product</b>
<b>Pilot phase</b>	(1) 1998/9	3 weeks	Computer game
<b>Interim phase</b>	(2) 99/00	3 weeks	Walkers crisps
	(3) 2000/1	3 weeks	Mobile phone (pre-paid cards)
	(4) 2001-2	<b>1<sup>st</sup> time</b> <b>4 weeks</b>	Christmas Pudding
	(5) 2002-3	4 weeks	G3 mobile phone
	2003-4	Student group was too small to conduct the electronic role-play	
<b>Core case study</b>	(6) 2004-5	4 weeks	Pub chain, based on Wetherspoon

#### 8.1.1 The case of this case study

The case of this case study is the ERP, a collaborative task carried out in the target language German in class time over a period of 3 to 4 weeks. The ERP serves the purpose of meaningful L2 practice for students enrolled in a BA international business course with German. It involves Internet research under a subject-specific perspective, CMC in form of email, and written and oral L2 text production. The core case being investigated is the last ERP for which the most comprehensive data collection methods were available. Prior ERPs are included in the study to facilitate a longitudinal perspective and a triangulation approach.

The case of this case study is the task which is informed by pedagogical considerations and research in task-design, SLA, and CALL to which the first two

conceptualising chapters are dedicated. The case study looks into the effectiveness of the ERP as a manifestation of CALL by answering three research questions:

-Can content be learned in this open framework of CALL? If so, how can it be demonstrated?

- Can the electronic role-play facilitate language learning within CALL? If so, how can this be demonstrated?

-What do students actually do, when involved in this kind of CALL task? What kind of student behaviour or interactional patterns emerge?

The main aims addressed through the research questions are:

(1) to contribute to the empirical knowledge of the effects and effectiveness of collaborative CALL.

(2) to contribute to the methodological knowledge in CALL.

---

## **8.2 Appendix 2 Original texts in German**

---

### 8.2.1 Task brief (German) ERP 2004-5

#### Situation

Ihre Firma (britisch) möchte einen neuen Markt (in den sogenannten neuen Bundesländern) erschließen. Sie arbeiten an dem Projekt unter besonderer Berücksichtigung der folgenden Punkte:

-kulturelle Unterschiede in den verschiedenen Ländern

-ökonomische Probleme

Beachten Sie, dass die Öffnung der Mauer bereits vor fast 16 Jahren stattfand. Die Erfahrungen durch Ihren Aufenthalt in Deutschland im letzten Jahr werden Ihnen helfen. Wie Sie wissen, bestehen noch immer Unterschiede zwischen den alten und neuen Bundesländern.

#### Bedingung

Jegliche Kommunikation zwischen Ihnen und Ihren Kollegen findet auf Deutsch statt. Sie arbeiten für renommierte mittelständische Firmen. Achten Sie deshalb auf Register und angemessenen Sprachstil in Ihrem Schriftverkehr. Die Kommunikation mit Kollegen der anderen Gruppen erfolgt per email (Alle Emails cc [christine.leahy@ntu.ac.uk](mailto:christine.leahy@ntu.ac.uk) ).

Seien Sie (selbst)kritisch. Für Sie hängt viel von der erfolgreichen Verhandlung mit den Kollegen ab. Der finanzielle Verlust eines Flops könnte das Ende Ihres Arbeitsplatzes und der Firma bedeuten. Eine erfolgreiche Produkteinführung wird Ihnen eine lang ersehnte Gehaltserhöhung bescheren.

Sie arbeiten in fünf Gruppen. Die einzelnen Gruppen bearbeiten unterschiedliche Aufgaben.

### Aufgaben

**Gruppe 1:** Firma A (Sitz in Nottingham) möchte in einen neuen Markt expandieren (neue Bundesländer). Einigen Sie sich schnell in der Gruppe, welches Produkt Sie vermarkten wollen und informieren Sie die anderen Gruppen sofort über Ihre Wahl. Folgen Sie den detaillierten Arbeitsanweisungen für Ihre Gruppe, die Ihnen in Woche 1 gegeben werden.

**Gruppe 2:** Firma B (Sitz in Köln) ist eine Marktforschungsfirma. Während Gruppe 1 noch über das Produkt nachdenkt, sammeln Sie Kriterien für eine Produktneueinführung. Sowie Sie das Produkt kennen, erarbeiten Sie zunächst eine allgemeine Marktforschungsstrategie. Dann erfragen Sie alle nötigen Informationen von den anderen Gruppen. Gruppen 3, 4 und 5 sind Ihre Assistenten, die Ihnen wichtige Zusatzinformationen liefern. Es ist Ihre Aufgabe, die Forschungsassistenten zu führen und mit Anweisungen zu beauftragen.

Entwickeln Sie eine angemessene Strategie für das einzuführende Produkt. Sie werden später ihre Wahl begründen! Folgen Sie den detaillierten Arbeitsanweisungen für Ihre Gruppe, die Ihnen in Woche 1 gegeben werden.

**Gruppe 3:** Sie suchen Informationen zu einem ähnlichen Produkt vom Internet und informieren die anderen Gruppen über die Ergebnisse. Folgen Sie den detaillierten Arbeitsanweisungen für Ihre Gruppe, die Ihnen in Woche 1 gegeben werden.

**Gruppe 4:** Sammeln Sie Material über die Marktbedingungen in den neuen Bundesländern. Schicken Sie zusammengefasste und relevante Ergebnisse an die Kollegen. Folgen Sie den detaillierten Arbeitsanweisungen für Ihre Gruppe, die Ihnen in Woche 1 gegeben werden.

**Gruppe 5:** Sie erarbeiten eine Checkliste möglicher kultureller Unterschiede und wirtschaftlicher Probleme, die die Produkteinführung behindern, erschweren oder sogar erleichtern könnten. Beraten Sie Ihre Kollegen in den anderen Gruppen oder erfragen spezifische Informationen, die für Ihre Aufgabe von Wichtigkeit sind. Folgen Sie den detaillierten Arbeitsanweisungen für Ihre Gruppe, die Ihnen in Woche 1 gegeben werden.

### Zeitplan

**Woche 1** dient der Formulierung und der Klärung wichtiger Fragen in den einzelnen Gruppen. Informationen werden zusammengetragen.

**Woche 2** dient der kritischen Abwägung der erarbeiteten Informationen. Gemeinsam, in Zusammenarbeit mit allen Gruppen, entwickeln Sie eine Marketingstrategie für das gewählte Produkt für den angegebenen Zielmarkt.

**Woche 3** Alle Gruppen bereiten eine (selbst)kritische Präsentation (ppp) ihrer Teilelemente vor. Alle Gruppen stellen ihre Ergebnisse vor und beschreiben die

Entwicklung des Projekts. Benennen Sie die Gruppenergebnisse in Hinblick auf Ihre Marketingstrategie. Beziehen Sie sich hierbei auf Ihre Kenntnisse kultureller Unterschiede und ökonomischer Probleme. Benennen Sie mögliche Schwierigkeiten bei der Produkteinführung und eventuelle Lösungswege.

**Woche 4** In Einzelarbeit halten Sie Ihre Ergebnisse schriftlich fest. Messen Sie Ihre Gruppenergebnisse an den Fragen, die Sie in Woche 1 formuliert haben. Haben Sie alle Aufgaben erfüllt, die Sie erfüllen wollten?

### 8.2.2 Group 1: Comparison questions – report

(Chapter 5)

The following table corresponds with table 7 in the thesis. Table 7 represents an overview in English which is based on the student output for the presentation and the written report. Below shows only the comparison between the questions posed by the group during week 1 and student 2's report at the end of the project (printed verbatim). It represents the matching between self-posed questions and answers in week 4 and serves as an example: The matching between questions and presentations followed the same principle.

**Table 12 Comparison Of Questions (Gr.1, Week 1) – Report (Week 4)**

Questions in <b>week 1</b>	Answers in <b>student 2's report in week 4</b> (357 words)
<u>Questions for group 3</u> -Was ist die beliebteste Produkten in den deutschen Kneipen? -Können sie Vorschläge über deutsche Lieferanten machen?	... Unser Plan war am Anfang drei Kneipe zu eröffnen, die in Erfurt, Leipzig und Dresden liegen sollen. Diese Städte gelegt günstig in eine ziemlich eng Dreieck und auch nicht weit von andere mögliche Lieferanten in z. B. Polen und die Tschechische Republik. Also Lieferanten-Kosten werden ziemlich einfach zu kontrollieren. ...
<u>Questions for group 4</u> -Können sie eine Lücke im Markt sehen? -Wie stark ist die Konkurrenz im Kneipenmarkt der neuen Ländern? Was ist ein typische Kunde profil? (Zielgruppe?) Unsere Zielgruppe ist hauptsächlich jüngere Leute die billiger Bier brauchen!	Trotz diesem, und weil wir in Zeitnot waren, haben wir hauptsächlich allein das Produkt ausgewickelt. Wir waren ja die Leiter! Unser Plan war am Anfang drei Kneipe zu eröffnen, die in Erfurt, Leipzig und Dresden liegen sollen. Diese Städte gelegt günstig in eine ziemlich eng Dreieck und auch nicht weit von andere mögliche Lieferanten in z. B. Polen und die Tschechische Republik. Also Lieferanten-Kosten werden ziemlich einfach zu kontrollieren. Die Kneipen im Stil etwa minimalistisch. Es gibt ein ‚Ostalgie‘ Faktor in diesem Gebiet. Im Erdgeschoss befindet sich Billiarde, Darts und Musik. Oben und später am Abend beginnt eine Disko. Überall wird interessante Bier-Sorten verkauft.
Evaluation	Ich muss zugebe, dass einige der Informationen Benutzbar waren. Zum Beispiel, die Größe von verschiedenen Städten in das Ziel-Gebiet und Informationen über die erfolgreich Brauerei in Sachsen.

### 8.2.3 Group 4: Comparison questions – report

(Chapter 5)

The following table corresponds with table 8 in the thesis. Table 8 represents an overview in English which is based on the student output for the presentation and the written report. Below shows only the comparison between the questions posed by the group during week 1 and their report at the end of the project (printed verbatim). It represents the matching between self-posed questions and answers in week 4 and serves as an example: The matching between questions and presentations followed the same principle.

**Table 13 Comparison Of Questions (Gr.4, Week 1) – Report (Week 4)**

Questions in week 1	Answers in report in week 4 (report written jointly by student 8 +7) (468 words)
<u>Strategie</u> Was fuer ein Strategie gibt es? – Global (zentralisieren) oder Local (anpassen)	
<u>4 P's: Produkt</u> Wollen wir Essen und Getraenke anbieten? Was fuer einen Stil wird es sein? – Schick, Altmoedisch, 'Retro', Gemuetlich Was fuer Einrichtung gibt es? – Gesellschaftspielen? Tanzen? Musik?	Die erste Frage war über die Produkt selbst. Wir haben nicht so viel Information über die so genannte "Kneipemarkt" gefunden weil Kneipenkette selten in Deutschland ist. Ketten gibt es schon aber mehr für Restaurants. Man kann sagen, dass die Deutschen nicht an Ketten gewöhnt sind. Es gibt 'Irish-Pub-Kette', aber keine Kette, die die deutsche Atmosphäre einsetzt das heißt es gibt eine Marktlücke. Jedoch sind Schnäppchen-Ketten unsere Haupt-Konkurrenz. Für diese Antwort haben wir am meisten unsere eigene Erfahrung benutzt sonst haben wir natürlich verschiedene Websites benutzt.
Welche Zielgruppe/Altegruppe?	Touristen
<u>Place</u> Wo werden die Kneipe sein? – Stadtmitte, Einkaufszentrum, Vorort der Stadt	Die zweite Frage war über das Ort. Erst haben wir allen mit einer Karte, die wir in dem Internet gefunden haben, gezeigt, wo die neuen Bundesländer sind. Danach haben wir die Hauptstädte in jedem Land vorgeschlagen weil so viele Touristen diese Städte besuchen.
<u>Promotion</u> Was sind die demographischen Charakteristiken von unseren Kunden	Die letzte Frage war über die Werbung. Dafür haben wir nicht so viel Information gefunden. Außer, unseren Kunden sind meisten Touristen. Unsere Computer waren kaputt, deswegen hatten wir nicht so viel Zeit um das Information über Touristen zu finden.

<p><u>Price</u></p> <p>Wieviel kostet unsere Produkte? – Es haengt von dem Stil ab</p>	<p>Die dritte Frage war über Preise. Wir haben die Information von dem Statistischen Bundesamt (2004) gesammelt. Der Bericht über Geldausgabe in 2003 behandelt das Geld die Leute für Essen und Trinken verfügbar haben. Heute Leute geben weniger Geld als vorher aus. In 2004 gab es 351 Euro je Einwohner für Essen und Trinken außer Haus. Von einer Kette Seite, haben wir Beispiele für Preise gefunden. Zum Beispiel kostet ein Bier vom Fass (0,3L) in Bad-Gnadersheim; 1,05€ (zum Vergleich: 1,80€ bei einem Gasthof der Nähe).</p>
	<p>Am Anfang haben wir den ganzen Prozess ein bisschen verwirrt gefunden. Es war schwierig zu entscheiden über die Produkte. Das war am wichtigsten deswegen haben wir viele Zeit für unsere Erforschung verloren. Wir haben auch die Erforschung auf Deutsch schwierig gefunden, außerdem mussten wir in zu vielen Richtungen arbeiten. Die Präsentation war das Einfachste, obwohl nur eine Person sie gemacht hat.</p>
	<p>-Es wäre besser wenn die Lehrerin die Produkte vorher gewählt hätte, dann könnten wir schneller und besserer Erforschung machen. Das heißt, dass die Lehrerin Hinweise über die Produkte geben sollte, damit wir nicht Zeit verlieren. z.B. „Ihre Firma möchte eine Kneipe Kette öffnen, sie arbeiten an dem Projekt..“</p> <p>-Kurz vor dem Elektronischen Rollenspiel sollten wir schon entscheiden, was für ein Produkt wir wollen, damit wir schneller Anfängen können.</p> <p>-Am Ende jeder Arbeitssitzung sollten wir kurz treffen um zusammenzufassen und aufzuklären, was wir von jeder Gruppe wollen.</p> <p>Wir denken, dass es eine gute Idee war, weil wir gezwungen waren, allein zu arbeiten. Auch haben wir viele Fähigkeiten auf Deutsch entwickelt: Entscheidung, Forschung, Zusammenfassung, schriftliche Kommunikation und Präsentation.</p>

---

Chapter 5.1 - Longitudinal perspective (quotes)

The quotes below appear in the same order as the translated versions in the main body of the thesis text.

**Quote (1)** „Es ist wegen dieses Problem, dass man eher weniger Nachfrage in den neue Bundeslaender findet als in den Ehm. Westdeutsche Bundeslaender. Es gibt deshalb keinen Sinn einen neuen Marktstrategie nachzuforschen wegen des erhoekten Drucks auf "Profit Margins". Die kosten eine neue Strategie aufzusetzen sind viel zu hoch eine neue Strategie zu erforschen. Wir Glauben dass, es besser

waere eine einheitliche Marktstrategie fuer einen homogenen deutschen Markt zu entwickeln." (ERP1; group 2; 9/11/98)

**Quote (2)** „Das Zahl von 1.756.000 zeigt wie viele Arbeitslose es in Ostdeutschland gibt. Im Vergleich zu Ostdeutschland, hat Westdeutschland zurzeit 2.951.000 Arbeitslose. Es ist bedeutend zu bemerken, dass die Bevölkerung im Westen viel grösser ist als im Osten. Hohe Arbeitslosigkeit bedeutet weniger Einkommen und zwar muss die Firma, die expandieren will (Gruppe 1) ziemlich vorsichtig fortsetzen. Es gibt eine kleinere Chance, dass die Leute in Ostdeutschland ein teures Handy kaufen könnte. Ein anderer Punkt wird klar. Aus Angst vor Arbeitslosigkeit sparen die Leute und kaufen sie weniger und nicht so oft.“ (ERP5; student 9, individually written report)

**Quote (3)** „Das bedeutet, dass die Leute in den neuen Bundesländern wenig verfügbares Einkommen haben und es ist nicht ganz möglich für diese potenzielle Kunden teuer Sachen zu kaufen. Dass könnte den Zuliefern Probleme geben.“ (ERP5; student 9, individually written report)

**Quote (4)** „Da eine Konzentration auf kulturelle Unterschiede bei UMTS Handys nicht moeglich war, weil Handys weltweit meistens aus dem gleichen Grund benutzt werden und auch ein einheitliches Design haben, haben wir uns auf die wirtschaftlichen Probleme konzentriert, welche eine Produkteinfuehrung behindern koennten.“ (ERP5; student 10, individually written report; this student was a German native speaker studying at NTU)

**Quote (5)** „Es war auch fast unmoeglich, Ostdeutsche-spezifisches Daten zu finden, weil siet 1989 gibt es kein „Ost“ und „West“ Deutschland. Deshalb mussten wir fuer regional-spezifisches Daten suchen, und diese Typ von Daten benutzen.“ (ERP5; students 7+8)

**Quote (6)** „Ich habe in Gruppe Zwei gearbeitet. Unsere Aufgabe war eine Marketingstrategie für 3G Handys zu entwickeln. Um diese Forderung zu erfüllen, haben wir eine Liste von Fragen geschafft. Gruppe Eins hat uns die Antwort den Fragen ‚Was genau sind 3G Handy‘ und ‚Was ist der Zielgruppe‘ und ‚Was ist der Geschäftskonzept?‘ und ‚was ist der Bugdet?‘ gegeben. Gruppe Drei haben uns mit den Fragen ‚Wie lange sind sie am Markt‘ und ‚in welchen Länder findet man 3G Handys‘ geholfen. Wir haben Antworten von den Fragen: ‚Was sind die Eigenschaften eines deutschen Handybenutzer und des deutschen Handy Marktes‘ und ‚Was ist der Konkurrenz, beziehungsweise der Produkte und der Firma?‘ von Gruppe Vier erhalten. [...] In der ersten Wochen haben wir nicht so viel gemacht, weil wir auf Gruppe Eins warten müssten, um ein Geschäftskonzept zu erhalten. Wir haben unsere Anforderungen an der anderen Gruppen per Email geschickt und dann mussten wir auf Antworten warten, um unsere bestimmte Strategie beginnen zu schreiben.“ (ERP5; student 4)

**Table 14 Debriefing May 2005 (In German)**

Original in German, for translation into English please see appendix 10.

Present during last session:

S 2, S 4, S 5, S 6, S 7, S 8, S 9, S 10, Tutor = T

absent: student 1 and student 3

T	teacher intro
T	Ich möchte euch allen ein paar Fragen stellen, was über die schriftliche Zusammenfassung hinausgeht. Ehm, erst mal ganz spontan, was haltet ihr von dem Projekt?
8	Nützlich.
T	Warum?
9	Ich habe meine deutsche Kommunikation bei Email verbessert. Ehm, ich habe ehm, über wirtschaftliche Fehler gelernt, was ich kann nächste Mal besser machen.
6	Ja, ich meine auch, Business Deutsch besser. ... erweitert.
T	Erweitert? Ja.
9?	Ja, und auch 'ne gute Zeit gehabt. (general laughter)
T	zu gut, glaube ich.
2	Es war ziemlich hektisch und beschäftigt. Und wir müssen, eh, so weit wie möglich, eh, auf Deutsch halten, das ist sicherlich eine gute Ding und dann lernt man viel Deutsch. Und, eh, diese Projekt war, eh, die Einhaltung von diese Projekt war - war vielleicht eine Art Bütel, für Deutsch zu lernen.
T	Was war es? Eine Art?
2	Eine Art Bütel
T	Bügel?
2	Bügel, ja. A coat-hanger.
T	Ja, Bügel.
2	Bügel. Ja
	(some laughter, some talk in background)
9?	Wir mussten unter Druck arbeiten. Das war gut.
T	mmh.
9?	Normalerweise, wir haben viel Zeit. Aber jede Woche wir hatten eine bestimmte was heisst task?
T	Aufgabe
9	Aufgabe
T	mmh
10	Ich glaube wir haben über unsere Zukunftarbeit gelernt. Eine E-Umwelt. In den Firmen wir werden sicher arbeiten mit Emails, mit ehh, Tochterfirma, oder andere Teile verschiedene Länder.
9	Man kann nicht jede Minute anrufen und sagen
10	Ja.
9+10	(together, incomprehensible)
10	Es ist eine gute Fähigkeit eine Email zu schreiben, weil es ist schwer deine Meinung klar zu, eh

9	formulieren
10	ja formulieren bei Email. - ... Leute können nur lesen und verstehen was du meinst .. zurück, eh, antworten.
8	Wir haben viele verschiedene Fähigkeiten gelernt, also Forschung, war nutzvoll, ehm, schriftliche Kommunikation und Präsentation am Ende, war ganz hilfreich zu erfahren, auf Deutsch, alles auf Deutsch.
T	Gut, dann wüßte ich ganz gerne, ehm, die Aufgabenstellung: Was wollt ihr dazu sagen? War die Auf - welche Vor-oder Nachteile hatte diese Aufgabenstellung? Wie könnte man das verbessern für die Zukunft, wie ist das im Vergleich zu den Übungen, die wir normalerweise in dem Klassenzimmer machen?
6	Es war nicht ganz klar am Anfang würde ich sagen und deswegen wir haben viel Zeit verschwendet.
T	verschwendet, ja.
6	Also vielleicht ein Besprechung vor diese Projekt. Wir könnten alle zusammen, ehm, sprechen darüber.
8	Wir dachten das auch. Wir sollen, ehm, bevor diese Sitzung, die, die Produkte entscheiden. Was es ist? Dann würde es uns viel mehr Zeit geben, das Forschung zu machen, mehr spezifische Forschung zu machen.
6	Also vielleicht ein Treffen ohne Computer. Also wir sprechen einfach alle zusammen im Klassenzimmer und entscheiden, was wir machen wollen.
T	Das war geplant, nur war ich leider krank die letzte Sitzung vor Ostern, also konnte ich das nicht machen. - War dann, die Aufgabe war ja, über Ostern darüber nachzudenken, was für ein Produkt wir einsetzen können.
?	Ja, OK. (laughter)
T	Also die Idee war da, es ging nur leider nicht weil ich die letzte Sitzung krank war.
10	Und die Abwesenung von manche Leute war nicht hilfreich für die Gruppe!
T	Das passiert eben so, das ist, eh, so ist das Leben.
9	Ich denke Gruppe eins war daran Schuld. Schlechte Ideen.
?	Meine Meinung.
5	Vielleicht wir könnten unser Time-Management und unsere Planung verbessern für die Zukunft.
T	Time-Management und Planung. Gut. Das muss man aber auch üben. Wenn man also Time-Management nicht so gut hinkriegt, dann hilft es hoffentlich beim nächsten Mal besser.
5	Ja.
T	Produktwahl. Ich weiß, dass [names of student 7+8] gesagt haben, es wäre vielleicht eine Idee, das Produkt zu, vorzugeben.
many	Ja, yeah, mh
T	Nech, dass der Lehrer sagt, das soll gemacht werden. - Oder es ist besser wenn man (student 2 interrupts)
2	Nein, ich, ich habe es gut gefunden, eine Produkt selbst zu finden.
7	Aber du ..., das war nur eine Gruppe, die das Produkt entschieden hat.
2	Jaja
many	Ja, aber die anderen Gruppen
7	und wir müssen die Meinung dieser Gruppe annehmen.
2	Ja. Das stimmt. (laughs)

7	Das, das wäre genauso dasselbe, wenn sie [the teacher] oder diese Gruppe entscheidet, weil das ist nicht unsere Idee.
many	Ich stimme mit dazu. ....
7	Egal, was für ein
2	Ja, ja, vielleicht mit ein Treffen zusammen, eine Woche früher, früher, um eine Produkt zu auswickeln. Und dann wir können mit Computern die Woche nach [?]
T	Man könnte ja auch sagen, es sollte auch ein ... , etwas authentisch sein, und das professionelle Leben, berufliche Leben, die Berufswelt widerspiegeln.
2	Ja.
T	Wenn man für eine Marktforschungs- oder Marketingfirma arbeitet, kann man auch nicht entscheiden, ob man nun Toilettendeckel einführt oder ob man was anderes macht.
9	Aber in Marketingfirma, gibt es, alle Leute, die .. sind nicht die gleichen. Die haben ein Leiter oder etwas. Dieses Projekt hatte keinen Leiter.
T	Ja, Gruppe 1 sollte die Führung übernehmen, sie waren Leiter des Produktes. OK. Ich habe noch mehr Fragen. Ehm, was meint ihr über die Aufgabenstellung? Ist die Aufgabenstellung authentisch genug, oder ist es besser so eine Aufgabenstellung wie wir sonst im Klassenzimmer haben, wo Texte vorgegeben werden.
10	Ich glaube es ist authentisch und ich ..., zurück zu die letzte Punkt. Ich glaube die erste Gruppe muss .. auch. Dann ist es authentisch weil, die Leute ,die arbeiten in einer Gruppe sind nicht immer zufrieden mit Projekt.
T	Dies ist aber Teil der Berufswelt.
10	Ja, genau, das meine ich. Es war authentisch, so. Die Leute können über das alles sprechen, die Entscheidung planen, Gruppe 1, so das war ..., aber authentisch, ich denke es war sehr attraktiv....
2	... etwas anderes machen, etwas Neues zu machen für uns, weil wir Deutsch lernten und ich will anbefehle [empfehlen], dass es wird gemacht nächstes Jahr mit die Gruppe nächstes Jahr.
T	Oh!
2	mh.
T	Danke schön.
2	Ja.
	Fun to learn [?]
many	Ich auch - Ich - Alle
7	Weil wir, weil wir alle, jeder ist gezwungen zu arbeiten, allein zu arbeiten, weil wir jeder eine Aufgabe haben, und – also wer – man kann nicht sagen: Ich habe keine Lust meine Hausaufgabe zu machen ... und ich mach nicht meine Zusammenfassung , wie – also im Semester kann man das sagen, wenn wir keine Lust haben, dann machen wir nicht. Aber hier können wir nicht das machen.
6?	Weil es gibt nur 2 Leute auch.
7	Ja, das ist eine Einschränkung.
6?	Eins, beide müssen ....
5	... Team
T	Warum?

5	Ehm, weil, weil wir – müssen - innovativ denken, alles etwas Neues auch denken, ehm, deshalb es war verschieden von, eh, Klassenarbeit, die wir hier gemacht haben.
T	Das geht dann vielleicht auch etwas wieder zurück zu der Produktwahl. Wenn das Produkt vorgegeben wäre, wäre es vielleicht weniger innovativ, ich weiss es nicht.
6?	Yeah
T	Aber auf der anderen Seite hat [name of student 7] recht: Wenn - ob nun Gruppe 1 das Produkt vorgibt, oder der Lehrer ist für die Gruppen 2-5 dasselbe.
?	yeah
T	Ja. OK. Was haltet ihr vom Computer als Hilfe, Sprachen zu lernen? Hilft es hier beim Sprachenlernen? - Im Computerraum. Oder ist es nur eine Abwechslung vom Klassenzimmer?
6	Nein, besser, ich denke.
9	Online dictionary – Wörter, Wörterbuch war sehr nützlich für mich.
many	Ja.
?	sehr schnell
2	und man habe ein Durchmischung von Wort - zu brauchen
6	Man kann deutsche Webseiten benutzen - auch
2	Ja.
T	Deswegen hast du die englischen für Bier benutzt, ne? - Man kann – es sollte recherchiert werden auf Deutsch, aber wie hilft es beim Sprachenlernen – wenn überhaupt?
8	Gut, es hilft Vok, Vokabeln zu lernen
T	mmh
8	über Marketing, und über Kneipenkette.
10	Ich glaube die Trend, wenn wir lernen, ist immer zuerst in Englisch zu gucken. Und, eh, es ist einfacher, wenn nicht so hilfreich als in Deutsch. Und hier wir müssen immer Deutsch, Deutsch, Deutsch, die Zeitung Deutsch – und es ist ein bisschen schwerer, aber es ist viel mehr hilfreich.
T	mmh
10	Man lernt mehr so, eh, und wenn wir vielleicht Arbeit nach Hause nehmen, wird immer zuerst Englisch gesprochen und danach ist nicht so nützlich.
5	Und auch es ist interactive und wenn ....
T	mmh – interaktiv zwischen wem? Computer und Student oder ...
5	Ja. Ehm, wenn du ehm, wenn man ein ehm Email schickt, du musst denken, was du auf Deutsch schreiben kannst, deshalb, ehm
6	korrekt die Ending, u.s.w.
5	Ja.
6	wenn man sagt – es gibt Fehler
9	Nicht so spontan wie sprechen.
T	mmh
6	mehr korrekt
9	Wir müssen unsere Arbeit prüfen
T	Glaubt ihr, es hilft dann beim sprechen üben oder beim schreiben üben oder lesen?

10	alles
6	schreiben
?	schreiben
2	alles
many	alles - schreiben - alles - sprechen
10	Wir sprechen miteinander.
2	Ja.
10	Wir haben nicht so viel Deutsch, weil
2?	(loud laughter)
6	.... Wir haben viel Deutsch gesprochen.
10	... Wir haben Deutsch gesprochen ... und heute die schriftliche, es hat sehr gut gefallen
many	Ja
10	Ja, helped me a lot.
T	Gut, dann habe ich nur noch 2 Fragen. Eine Frage zum, zu der Software, die wir benutzt haben. Ist es, ehm, sinnvoll, Powerpoint Präsentationen noch zu haben, wie für letzte Woche, oder ist das Schnickschnack, den man nicht braucht?
6	(repeats quietly) Schnickschnack (laughter)
8	Es ist nutzlos, weil wir können das Arbeit von alle andere Gruppe sehen.
T	Nutzlos?
2	Ja.
2 , 6	Nutzlos?
?	Nützlich (laughter)
8	Es ist <u>nützlich</u> , weil wir können alle Arbeit von den anderen Gruppen sehen.
T	OK. - Und die, eh, letzte Frage ist, ehm, - Ablenkungsfaktoren! Distraction. Gibt es hier mehr, eh, Ablenkung, indem man mal schnell seine Emails liest, und die Emails der Freundin oder des Freundes- oder auf eine andere Webseite geht, die man vielleicht nicht besuchen sollte? Oder, ehm, die Geräusche hier, dass es laut ist. Ist das
2	nicht besonders. Kein Problem.
many	Nee, kein Problem.
T	Kein Problem?
10	... ne kleine Zeit, Emails oder so, aber weniger - als im Klassenzimmer.
T	Im Klassenzimmer - ihr seid eine kleine Gruppe, ihr könnt euch auch schlecht verstecken, man sieht wenn ihr ...
5	Aber hier, man ... viel mehr Zeit - pressure
T	Zeitdruck?
5	und wir könnten nie an der Email gucken, wir mussten unsere Aufgabe machen.
7	Und alles was wir gemacht haben, ist gespeichert, bei dieser Camtasia! Und wenn wir etwas anderes machen, dann vermute ich, dass Sie sehen können.
T	Ja.
6	Wie Big Brother also!
?	Jajaja. (laughter)

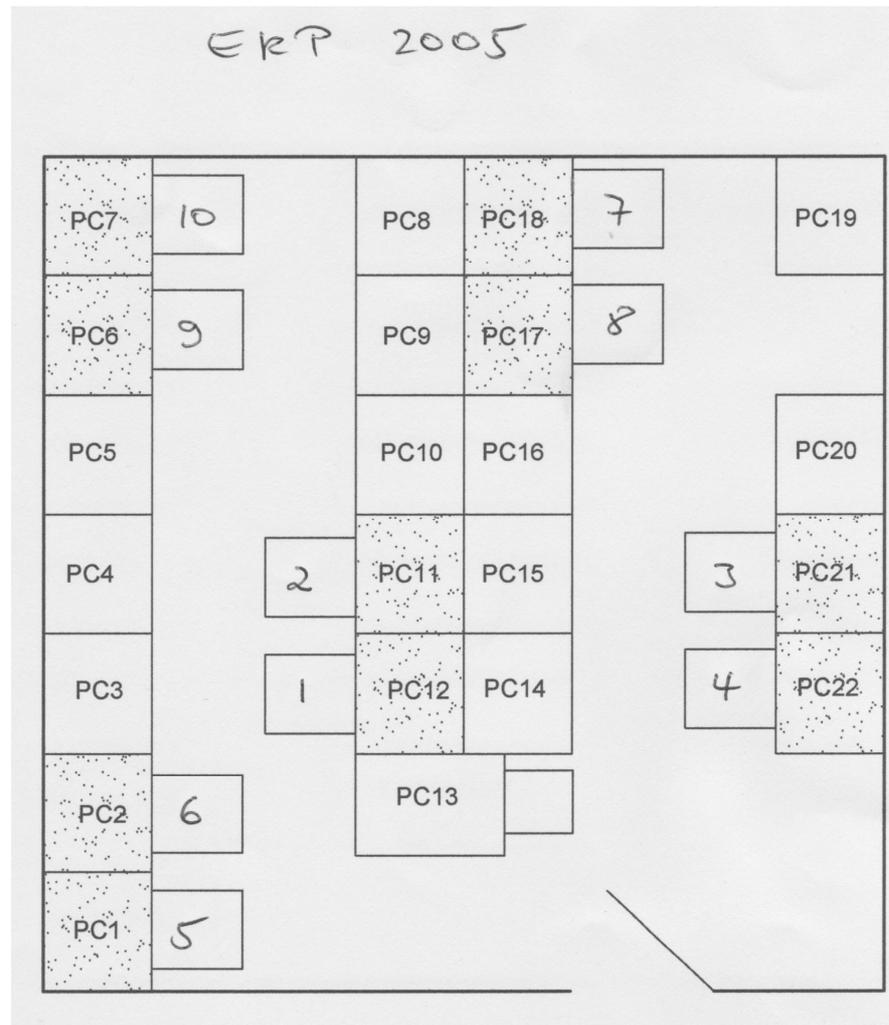
?	Ja, also
T	Stimmt.
6	Es ist ein bisschen, wie heisst es?
T	Invasion of privacy! (laughter) - Deswegen hab ich dich vorher gefragt, ob du es unterschreibst.
6	Ja.
2	Ahhh, zu spät.
T	OK, dann besprich dich mit [name of student 5], dann könnt ihr zusammen gleich
2	..... (laughter)
T	dann, was weiss ich, ein Gerichtsverfahren anstreben, gegen die bösen Lehrer. Ehm, [name of student 9], du hast gesagt, es ist sehr viel langsamer im Klassenzimmer. Warum?
9	Nee, ich habe gesagt, oft im Klassenzimmer ist es ein bisschen langweilig.
T	Langweilig?
9	Und hier ist es mehr interessant.
5	Ja
?	wenn man die ....
many	(Incomprehensible)
9	Kann ich auch – hier, ehm, etwas vorschlagen?
T	Ja.
9	Ich dachte, dass die Kommunikation zwischen Email war schwierig – oft - und die Kommunikationspunkte war verloren, oder ... gab es Missverständnisse. Also, ich vorschlage, das nächste Mal, ehm, jede Stunde haben wir 10 Minuten miteinander zu sprechen.
2	Das ist meine Meinung.
9	Ich denke am Anfang sollten 10 Minuten sein aber dann ..eine Firma, das funktioniert nicht
5	Vielleicht verbessern Deutsch,
?	Deutsch
5	und vielleicht schreiben clearer
T	klarer
many	klarer
10	Ich glaube, dass ist die Lernenprozess hier. Wir muss eine klare ... Email schreiben. Wenn es ist nicht so klar, dann ist es unsere Schuld und dann die nächsten paar Emails sind ein bisschen durcheinander.
9	die zweite Woche, wenn du fehlst, ich hatte vielleicht 10 Emails, ich konnte nicht
many	(Incomprehensible)
?	Wieso kannst du nicht?
9	10 Emails
	Ja. (laughter)
6	Ich hab 20 gelesen, oder was. .... (laughter)
many	(Incomprehensible)
7	Ich glaube auch, dass wir ein Treffen brauchen, entweder am Ende, oder am Beginn, damit wir – zusammenfassen – was wir gedacht haben.

T	Zu Anfang, das Problem, denke ich, zu Anfang ist, man kann sagen, OK, Produkt - weil man keine Ahnung hat, wie das Projekt sich entwickelt, ist es sehr schwer, es sich vorzustellen. Es wird eigentlich immer erst klarer, indem man anfängt, und etwas macht! Das vorher theoretisch abzuklären, wenn man nicht weiss, wie das Projekt läuft, ist sehr, sehr schwer.
8	Ja.
T	Aber es ist vielleicht gut zu sagen, OK, eh, welches Projekt, welches Produkt würden wir gerne nehmen wollen, und dann loszulegen.
7	Ja, aber, z.B. wenn wir am Ende der, der erste Sitzung, so - getroffen haben, hätten wir gesagt: OK, denn - also das ist kurz zusammenfassen, das ist eine Kneipekette, das so, so und so nächste Woche erinnert wie das das das von jede Gruppe, und - damit wir, also, weil Email, wenn - ja klar, das ist hilfreich, aber manchmal alle geht - gehen durcheinander und nicht zu allen Gruppen und eine sagen das, und das, und dann hat es verschiedene Meinung
10	das ist normaler Betrieb.
7	Jaja. Natürlich, das ist normal, aber normaler Betrieb, in Betrieben, ehh, treffen sie sich auch.
T	Richtig, dann müssen andere Kommunikationsstrategien eingesetzt werden.
7	weil - wenn ich - dann muss ich z.B. wenn ich etwas, von [name of student 2] und [name of student 4] etwas verschieden bekommt, dann muss ich an alle schreiben und alle zeigen, dass sie etwas verschieden gemacht haben und dass ich es korrigieren muss, obwohl es nicht meine Aufgabe ist,
T	mmh
7	weil z.B. haben sie, also haben ihre Aufgabe so - ich weiss nicht
6	Ich denke die Aufgabe war nicht klar, wir haben eigene Aufgabe.
5	Ich denke, wir haben keinen - Manager
7	Ja.
5	Wir
many	Ja, Yes
5	und - wir hatten nicht so gut - Aufgabe - was heisst allocation?
T	Aufgabenverteilung
5	Verteilung und ehm
7	im Laufe der, der Gruppe
5	ja, ein, ein Manager, die alles koordinieren können. Deshalb, die alle Leute haben - ein - Missverständnis
T	Gut. Das wäre zum Inhalt des, eh, zum Inhalt der Aufgabe, und das stimmt, man kann den Inhalt bestimmt sehr viel schneller erarbeiten, wenn der Manager, oder Leiter oder der Lehrer es wirklich in eine Richtung drängt. Aber, vom Sprachenlernen her, von der Benutzung der Sprache, ist es ja sehr häufig so, dass wir etwas in der Fremdsprache missverstehen, und auch in der eigenen Sprache. Es ist auch wichtig, Strategien zu entwickeln, diese Missverständnisse zu klären. Aber ich gebe euch recht, vielleicht ist das ganze viel zu kompliziert, dass es zu viele Dinge auf einmal tun will. Ehm,
7	Aber ich glaube wirklich, dass ein kurzes Treffen kann viele Sachen aufklären.
T	Ja, in der ersten, der letzten Sitzung vor Ostern war das geplant.

7	Aber ich meine am Ende jeder Sitzung.
T	Jede Woche?
7	Jede Woche.
2	mmh, ja, richtig, eine gute Vorschlag.
6	Ja, gute Idee,
many	agree
?	Jaja, ich bin deiner Meinung
T	Ist doch gut, dass ihr die gleiche Meinung habt.
many	(joking and laughter)
T	Das ist auch ein Punkt, den man mit beachten muss in Teamwork und geanso in der Firma, dass nicht immer alle in eine Richtung arbeiten, sondern manche auch gegeneinander.
	Ja. (laughter)
T	OK, nein, es ist sehr gut, dass 2 verschiedene Gruppen hier zu derselben Einschätzung kommen. OK – gut – dann – danke ich euch sehr, ehm, wenn ihr noch etwas mitteilen wollt, könnt ihr das gern per Email machen, und dann machen wir für heute Schluss.
2	Ja
T	OK, nächste Woche bitte im normalen Klassenzimmer.

### 8.3 Appendix 3 Computer room seating arrangement

(room lay-out with location of different groups)



#### Group's tasks and student numbers

	Group's task	Student ID
Group 1	Company A - wants to introduce new product to German market	1
		2
Group 2	Company B - market research company in Cologne; acts as consultant	3
		4
Group 3	Supporting research group: does a similar product exist in Germany?	5
		6
Group 4	Supporting research group: what are the market conditions in Germany?	7
		8
Group 5	Supporting research group: are there cultural differences which could have an impact on the marketing strategy?	9
		10

---

#### **8.4 Appendix 4 Student consent form**

---

Electronic role-play 2004-5

Agreement

between Christine Leahy and participating students

I will participate in the electronic role-play as part of my class in business German.

I have no objections that the learning paths will be observed and may be analysed in order to gain a deeper understanding of language learning processes.

I do not object if the data is used for future publication.

Signature (Student)

Signature (Lecturer)

Date

## 8.5 Appendix 5 Sample of data created by STARR software

STARR tracking software  
Sample of data produced

Date	Time	Duration	Category	Title	Path	Text
04/26/2001	8:00:39	00:24	TITLE	007 STARR Commander - www.iOpus.com	c:\program files\starr\starrcmd.exe	-
04/26/2001	8:01:03	00:05	TITLE	Starr	c:\wintexplorer.exe	-
04/26/2001	8:01:08	00:10	TITLE	007 STARR Commander - www.iOpus.com	c:\program files\starr\starrcmd.exe	-
04/26/2001	8:01:18	00:04	TITLE	Inbox - Microsoft Outlook	c:\program files\microsoft office\outlook.exe	-
04/26/2001	8:01:22	02:20	SUBTITLE	RE: tRACE on-line school meeting - Message (Rich Text)	c:\program files\microsoft office\outlook.exe	-
04/26/2001	8:02:03	-	Keystrokes	RE: tRACE on-line school meeting - Message (Rich Text)	c:\program files\microsoft office\outlook.exe	is the WebCT
04/26/2001	8:03:42	00:04	TITLE		c:\wintexplorer.exe	-
04/26/2001	8:03:46	04:27	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://www.microsoft.com/windows/ie/ie5/download/ieupdate.htm
04/26/2001	8:03:48	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://languages.ntu.ac.uk/
04/26/2001	8:03:51	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://www
04/26/2001	8:04:00	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://www
04/26/2001	8:04:00	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://m/
04/26/2001	8:04:01	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://m/
04/26/2001	8:04:01	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://man/
04/26/2001	8:04:02	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://man/
04/26/2001	8:04:02	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://ma/
04/26/2001	8:04:02	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://macinto/
04/26/2001	8:04:02	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://macintosh/
04/26/2001	8:04:03	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://macintosh/
04/26/2001	8:04:03	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://www.filewave.com/download/index.html?src=macintosh
04/26/2001	8:04:04	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://www.filewave.com/contact/index.html
04/26/2001	8:04:04	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://languages.ntu.ac.uk/
04/26/2001	8:04:05	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://languages.ntu.ac.uk/contacts/webfeedback.html
04/26/2001	8:04:05	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	pull@ntu.ac.u
04/26/2001	8:04:06	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://languages.ntu.ac.uk/contacts/webfeedback.html
04/26/2001	8:04:06	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://languages.ntu.ac.uk/contacts/post/webfeedback.fdm
04/26/2001	8:04:06	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/
04/26/2001	8:04:07	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/_students.html
04/26/2001	8:04:07	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/itc/itc.html
04/26/2001	8:04:07	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/it/it.html
04/26/2001	8:07:00	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	cdlton99ciltton99
04/26/2001	8:07:11	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/it/it.html
04/26/2001	8:07:19	-	Link	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	-
04/26/2001	8:07:21	-	Keystrokes	http://www.microsoft.com/isapi/redir.dll?Prd=ie&PVer=5.0&Ar=ie5uc	c:\program files\plus\microsoft internet\explorer.exe	-
04/26/2001	8:08:13	00:04	SUBTITLE	Internet Explorer	c:\program files\plus\microsoft internet\explorer.exe	-
04/26/2001	8:08:17	-	Link	Internet Explorer	c:\program files\plus\microsoft internet\explorer.exe	http://languages.ntu.ac.uk/contacts/webfeedback.html
04/26/2001	8:08:17	00:35	SUBTITLE	AutoComplete	c:\program files\plus\microsoft internet\explorer.exe	-
04/26/2001	8:08:25	-	Link	AutoComplete	c:\program files\plus\microsoft internet\explorer.exe	http://languages.ntu.ac.uk/contacts/post/webfeedback.fdm
04/26/2001	8:08:39	-	Link	AutoComplete	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/
04/26/2001	8:08:43	-	Link	AutoComplete	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/_students.html
04/26/2001	8:08:46	-	Link	AutoComplete	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/itc/itc.html
04/26/2001	8:08:50	-	Link	AutoComplete	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/it/it.html
04/26/2001	8:08:52	00:18	SUBTITLE	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	-
04/26/2001	8:08:55	-	Keystrokes	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	cdlton99ciltton99
04/26/2001	8:09:07	-	Link	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/it/it.html
04/26/2001	8:09:10	00:02	TITLE		c:\program files\adobe\acrobat 4.0\reade\acrobat32.exe	-
04/26/2001	8:09:12	00:32	TITLE	http://human.ntu.ac.uk/it/docs/it102/acc2.pdf - Microsoft Intern	c:\program files\plus\microsoft internet\explorer.exe	-
04/26/2001	8:09:12	-	Link	http://human.ntu.ac.uk/it/docs/it102/acc2.pdf - Microsoft Intern	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/it/docs/it102/acc2.pdf
04/26/2001	8:09:24	-	Link	http://human.ntu.ac.uk/it/docs/it102/acc2.pdf - Microsoft Intern	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/it/it.html
04/26/2001	8:09:28	-	Link	http://human.ntu.ac.uk/it/docs/it102/acc2.pdf - Microsoft Intern	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/is/ssstaf/DiltmerB.html
04/26/2001	8:09:36	-	Link	http://human.ntu.ac.uk/it/docs/it102/acc2.pdf - Microsoft Intern	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/it/it.html
04/26/2001	8:09:38	-	Link	http://human.ntu.ac.uk/it/docs/it102/acc2.pdf - Microsoft Intern	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/itc/contact.html
04/26/2001	8:09:44	01:36	SUBTITLE	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	-
04/26/2001	8:09:49	-	Keystrokes	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	ECDLdane
04/26/2001	8:10:00	-	Link	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/ECDL/Module%201%20Theory/Module%20Con
04/26/2001	8:10:02	-	Link	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	http://human.ntu.ac.uk/itc/contact.html
04/26/2001	8:10:12	-	Keystrokes	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	www
04/26/2001	8:10:13	-	Link	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	http://www
04/26/2001	8:10:13	-	Keystrokes	Enter Network Password	c:\program files\plus\microsoft internet\explorer.exe	go

---

## 8.6 Appendix 6 Email correspondence with specialists in the field

---

To Paul Brett (27/4/2001)

[...]

I am planning a project which involves tracking student actions when working with a computer and the internet.

I tested "STARR PC & Internet Monitor", but it does not provide all the information I need (but plenty of other).

The project aims to find out more about how the internet can assist in the acquisition of content and language. For the last 3 years I tested out a task which involves an electronic role-play. Primary information is accessed on the web, selective information is used to solve the given problem. Students need to summarise and modify the accessed information. While STARR logs all the URLs and shows up key strokes, it does not show which information is copied from the web and pasted into a word document.

Furthermore, if one rectifies a mistake while typing, the keystroke sequence includes the incorrect letter, the backspace delete symbol and the correct letter making the keystroke log difficult to read if someone types with many errors. It would be difficult to match up the text that is captured to the text within a document and the text on the web. In other words, I can't track the important moves in a manageable manner.

Do you know of any software which I could use?

The aims are:

-to track accessed information on the web (STARR does that),

-to track mouse movements like copying and pasting, including the information copied (STARR does not do that),

-keystrokes which allow for a readable text, i.e., not an endless string of letters and symbols like the backspace delete symbol which need serious editing before readability is achieved (STARR does not do that)

-to track applications in use, e.g., word document, email, internet + URL and time.

Can you help?

[...]

-----

From Paul Brett (29/4/2001)

[...]

Thanks for your message but I don't think I can help. I am not really aware of any tracking software which will record what you need – howvere [sic] like you I am convinced ther [sic] must be some somewhere. Could I suggest you put the question to the IATEFL Computer Sig discussion list which can find at <http://www.egroups.com/group/IATEFLComputerSig>

200+ minds are better than one!

[...]

-----

From Mark Warschauer (9/1/2001)

[...]

Sorry, I don't know about the software your looking for. I'm sure if you join an email list you can ask and get that kind of information. Try, for example, NETEACH-L or TESLCA-L.

[...]

-----

From Graham Davies (28/4/2001)

[...]

Thanks for your email. [...] Tracking students' activities at the keyboard is not one of my strengths, I'm afraid. I used to write tracking routines way back in the 1980s, but things were much simpler then, especially before the advent of the web.

I have forwarded your email to Vance Stevens [...] to see if he can help. He has written tracking routines for more up-to-date applications. I know he collected a lot of data detailing students' use of a Cloze program. He may be able to advise.

[...]

-----

From Alan Cooper (3/5/2001)

[...] I regret to say that I am not at all familiar with the kind of software you are looking for. I don't know if such exists, or, if so, where to find it. I wish you luck in your quest.

[...]

-----

Postings to the email discussion lists did not produce an answer to the query either.

---

## 8.7 Appendix 7 Main data (overview)

---

**Table 15 Main Data Utilized For Analysis**

Note: The number and length of written and received emails is not itemized below, but formed part of the main data.

Week		Length of Camtasia recording (hr / mins / secs)	<i>session transcript</i> <sup>61</sup>				<i>Task development, text production files</i>		
Week 1	Student 2	1:21:47	½ of 5922 to 6400 words <sup>62</sup>				√		
	Student 1	1:22:04							
	Student 8	1:22:15	½ of 6289 to 6678 words				√		
	Student 7	1:22:06							
Week 2	Student 2	1:49:21	½ of 9396 to 9601 words				√		
	Student 1	1:49:37							
	Student 8	1:38:30	½ of 7764 to 8364 words				√		
	Student 7	1:55:42					√		

---

<sup>61</sup> Including words on screen + comments, retrieved number of words via whole document word count.

<sup>62</sup> Two figures represent the word count on the pair's two transcripts. The difference in length of the transcript is due to the length of comments and the complexity of the screen display. For example, if part of a session was worked on one machine only, the other partner's machine would not show any activity and the transcript would therefore be considerably shorter. No distinction was made whether the tutor also talked and whether individual contributions were made in English or German.

Week <b>3</b>				<b>presentation</b>			√		
	Student 2	1:52:06	½ of 1871 to 8606 <sup>63</sup> words	2 slides: 19+28 = <b>47 words</b>			√		
	Student 1	1:52:28							
	Student 8	1:53:25	3781 words	10 slides: 14+13+17+30+32+56+13+70+11+25= <b>281 words</b>			n/a		
	Student 7	----- -	-----	-----			n/a		
Week <b>4</b>					<b>Written report</b>	<b>Final group discussion, debriefing</b>	n/a	<b>comparison quest' – present report</b>	<b>comparison quest' – written report</b>
	Student 2	1:53:55	2570 words		357 words, free writing from memory	All students (8) + tutor, but without Student 1 + Student 3 who missed the class = ~2500 words	n/a	√	√
	Student 1	----- -	-----	-----	-----		n/a		-
	Student 8	1:52:45	6433 words		1 report for both: 468 words, altered, developed previous notes		n/a	√	√
	Student 7	1:50:06				-			

**Overall** 23.93 hrs (1436 minutes) of Camtasia recording.

<sup>63</sup> After a short while into the recording of the session, they decided to work from student 1's machine.

---

## 8.8 Appendix 8 Breakdown of the length of recordings

---

**Table 16 Corpus ERP**

Length of Camtasia recording per student per week (as to Camtasia time counter); data consists of student dialogue, background talk, noises, and screen movements. Overall 54.48 hrs of Camtasia recording.

		Length of recording in hrs/mins/secs			Length of recording in hrs/mins/secs
<b>Week 1</b>	Student 2	1:21:47	<b>Week 2</b>	Student 2	1:49:21
	Student 1	1:22:04		Student 1	1:49:37
	Student 4	1:21:54		<del>Student 4</del>	-----
	Student 3	1:21:50		Student 3	1:26:58
	Student 5	1:21:31		<del>Student 5</del>	-----
	Student 6	1:21:50		Student 6	1:49:26
	Student 8	1:22:15		Student 8	1:38:30
	Student 7	1:22:06		Student 7	1:55:42
	<del>Student 9*</del>	-----		<del>Student 9</del>	1:48:23
<del>Student 10</del>	-----	<del>Student 10</del>	-----		
Overall recording		656 mins	Overall recording		738 mins
Average session length during week 1:		82 mins	Average session length during week 2:		106 mins
		Length of recording in hrs/mins/secs			Length of recording in hrs/mins/secs
<b>Week 3</b>	Student 2	1:52:06	<b>Week 4</b>	Student 2	1:53:55
	Student 1	1:52:28		<del>Student 1</del>	-----
	Student 4	1:57:31		Student 4	1:50:28
	Student 3	1:48:15		<del>Student 3</del>	-----
	Student 5	1:50:47		Student 5	1:54:19
	Student 6	1:28:42		Student 6	1:51:24
	Student 8 (in 2 parts)	0:22:54 + 1:30:31		Student 8	1:52:45
	<del>Student 7</del>	-----		Student 7	1:50:06
	Student 9	1:48:10		Student 9	1:52:43
Student 10	1:47:22	Student 10	1:52:07		
Overall recording		978 mins	Overall recording		897
Average session length during week 3:		109 mins	Average session length during week 4:		112 mins

\*Strikethrough = student absent that session

## 8.9 Appendix 9 Attendance

### Participation in role-play

	week 1	week 2	week 3	week 4		Number of weeks complete dyad attended
	transcripts				individual written work	
Group 1	student 1 ✓	student 1 1✓	student 1 ✓	-----	-----	3
	student 2 ✓	student 2 ✓	student 2 ✓	student 2 ✓	student 2 ✓	
group 2	student 3	student 3	student 3	-----	-----	2
	student 4	-----	student 4	student 4	student 4	
group 3	student 5	-----	student 5	student 5	student 5	3
	student 6	student 6	student 6	student 6	student 6	
group 4	student 7 ✓	student 7 ✓	-----	student 7 ✓	1 report* for student 7 + 8	3
	student 8 ✓	student 8 ✓	student 8 ✓	student 8 ✓		
group 5	-----	student 9	student 9	student 9	student 9	2
	-----	-----	student 10	student 10	student 10	
attendance out of 10	8/10	7/10	9/10		8/10	
groups complete	4 groups	2 groups	4 groups		3 groups	

shaded area (grey) – group incomplete

✓ = transcripts used for thesis

---

## 8.10 Appendix 10 Translation of the debriefing

---

**Table 17 Translation Of Debriefing May 2005 (In English)**

Present during last session

Tutor = T, and all students, except students 1 and 3.

T	teacher intro
T	I would like to ask you all a few questions which go beyond the written summary. Ehm, firstly, what is your spontaneous reaction, what do you think about the project?
8	Useful.
T	Why?
9	I have improved my communication skills by email in German. Ehm, I have ehm, learned about economic mistakes, what I can do better next time.
6	Yes, I agree, Business German better. ... extended.
T	Extended? Yes.
9?	Yes, and also had a good time. (general laughter)
T	Too good a time, I believe.
2	It was quite frantic and busy. And we have to, eh, as far as possible, eh, keep it in German, that is of course a good thing and one learns a lot of German. And, eh, this project was, eh, the compliance with the project was – was perhaps a type of „Bütel“ [?], to learn German.
T	What was it? A type of?
2	A type of "Bütel".
T	Hanger?
2	Hanger, yes. A coat-hanger.
T	Yes, coat-hanger.
2	Coat-hanger. Yes.
	(some laughter, some talk in background)
9?	We had to work under pressure. That was good.
T	mmh.
9?	Normally, we have a lot of time. But each week, we had a particular, what do you call „task“?
T	Task.
9	Task.
T	mmh
10	I believe we have learned about our future work. An E-environment. In companies, we will surely work with emails, with, ehh, subsidiary company, or other parts of different countries.
9	One cannot phone every minute and say
10	Yes.
9+1 0	(together, incomprehensible)

10	It is a good skill, to write an email, because it is difficult [to express] your opinion clearly, eh
9	formulate
10	Yes, formulate by email. - ... people can only read and understand what you mean ... back, eh, reply.
8	We have learned many different skills, actually research was beneficial, ehm, written communication and presentation at the end, was quite useful to experience, in German, all in German.
T	Well, I would like to know, ehm, the task: What would you say? Which advantages and disadvantages did this task have? How could this be improved for the future, how does this compare to the exercises which we normally do in the classroom?
6	I would say, at the beginning, it was not that clear. Therefore we wasted a lot of time at the beginning.
T	Wasted, yes.
6	Perhaps a discussion before the project. We could all together, ehm, talk about it.
8	We also thought that. We should, ehm, before the session, decide on the product. What it is? Then we would have more time for research, more specific research.
6	Perhaps a meeting without computer. We all discuss together and decide in the classroom, what we want to do.
T	That was the plan, but unfortunately I was ill during the last session before Easter, therefore I could not do that. - The task for the Easter break was to think about a product we could use.
?	Yes, OK. (laughter)
T	The idea was there, but it did not work because I was ill during the last session.
10	And the absence of some people was not helpful for the group!
T	That is what happens, that is, eh, that's life.
9	I think it was group 1's fault. Bad ideas.
?	My opinion.
5	Perhaps we could improve our time management and our planning in the future.
T	Time management and planning. Good. That has to be practised. If one cannot manage time well [this time], then hopefully it will work better the next time.
5	Yes.
T	Choice of product. I know that [names of student 7+8] said, it may be a good idea to prescribe the product.
ma ny	Yes, yeah, mmh
T	Well, what the teacher says has to be done. - Or would it be better if (student 2 interrupts)
2	No, I liked it that we could decide on a product.
7	But you ..., it was only one group which decided on the product.
2	Yesyes.
?	Yes, but the other groups

7	And we have to accept the opinion of this group.
2	Yes. That is correct. (laughs)
7	That, that would be the same, if she [the teacher] or this group decides, because this isn't our idea.
ma ny	I agree. ....
7	It does not matter, what a
2	Yes, yes, perhaps with a meeting, a week in advance, in order to unwrap [decide upon] a product. And then, the week after, we can with computers [?]
T	One could also say, it also should ... be a little authentic, and reflect the professional life, the life and world at work.
2	Yes.
T	If one works for a market research or marketing company one cannot decide whether to introduce toilet seats or something else.
9	But a marketing company has people, who ... are not the same. They have a leader or something. This project did not have a leader.
T	Yes, group 1 should have taken the leadership, they were the leaders for the product. OK. I have got more questions. Ehm, what do you think about the task? Is the task authentic enough, or would it be better to deal with tasks as we usually do in the classroom, where texts are specified.
10	I believe it is authentic and I ..., back to the last point. I believe the first group must also ... . Then it is authentic because the people who work in one group are not always happy with the project.
T	But that is part of professional life.
10	Yes, exactly, that is what I mean. Like that, it was authentic. People can talk about everything, can plan their decision, group 1, so that was .... but authentic, I think it was very attractive ....
2	... to do something different, something new for us, because we did learn German and I would recommend that it will be done again with next year's group.
T	Oh!
2	mh.
T	Thank you.
2	Yes.
?	Fun to learn [?]
ma ny	Me too. - I - Everybody
7	Because we, all of us, everybody has to work, work on their own, because we all have a task, and - who - one cannot say: I don't fancy doing my homework ... and I don't do my summary, like - also during the semester one can say that, if we do not fancy it, then we do not take part. But here, we cannot do that.
6?	Also because there are only two people.
7	Yes, that is a restriction.
6?	One, both have to .....
5	... Team
T	Why?

5	Ehm, because, because, we - have to - think innovatively, everything, also think something new, ehm, therefore it was different from, eh, work in class, which we have done here.
T	Perhaps that links back to the choice of the product. Were the product prescribed, it would perhaps be less innovative, I do not know.
6?	Yeah
T	But on the other hand, [name of student 7] is right: If - whether group 1 prescribes the product, or the teacher, the effect for groups 2-5 is the same.
?	yeah
T	Yes. OK. What do you think about the computer as an aid to learn languages? Does it help to learn languages? - In the computerroom. Or is it only a change from the classroom?
6	No, it is better, I think.
9	Online dictionary - dict, dictionary was very useful for me.
ma ny	Yes.
?	Very quick
2	And one has a mixture of words - to use.
6	One can also use German websites.
2	Yes.
T	That's why you used the English ones for beer, didn't you. - One can - one should research in German, but how does it help learning languages, if it does at all?
8	Well, it helps to learn voc, vocabulary.
T	mmh
8	About marketing and pub chain.
10	When we study, I believe the trend is always to look up in English first. And, eh, it is easier, even though not as helpful as in German. And here we have to always German, German, German, the newspaper German - and it is a little more difficult, but it is far more useful.
T	mmh
10	One learns more this way, eh, and perhaps if we take work home, we always speak in English first and later it is less useful.
5	And also it is interactive and if ....
T	mmh - interactive between whom? Computer and student or ...
5	Yes. Ehm, if you ehm, if one sends an ehm email, you have to think, what you can write in German, therefore, ehm
6	Correct the endings, etc.
5	Yes.
6	When one talks - there are mistakes
9	Not as spontaneous as speaking.
T	mmh
6	More accurate
9	We have to check our work.
T	Do you think it therefore helps practising speaking or writing or reading?
10	Everything.

6	Writing
?	Writing
2	Everything
ma ny	everything - writing - everything - speaking
10	We talk to one another.
2	Yes.
10	We do not have so much German because ...
2?	(loud laughter)
6	.... We talked a lot in German.
10	... we talked in German ... and today the written part, it was good.
ma ny	Yes
10	Yes, helped me a lot.
T	OK. I have only two more questions. One question relates to the software, which we used. Is it still useful, ehm, to have powerpoint presentations as we did last week, or is it a gimmick [Schnickschnack], which we do not need?
6	(repeats quietly) "Schnickschnack" (laughter)
8	It is useless, because we can see the work of the other groups.
T	Useless?
2	Yes.
2 , 6	Useless?
?	Useful (laughter)
8	It is <u>useful</u> , because we can see the work of the other groups.
T	OK. - And the, eh, last question is, ehm, - distracting factors! Is there, eh, more distraction here, by quickly reading emails, the emails of friends - by going to a different website, which one perhaps should not use? Or, ehm, the noise here, that it is too noisy. Is that ....
2	Not really. No problem.
ma ny	No, no problem.
T	No Problem?
10	... a little time, emails or so, but less - than in the classroom.
T	In the classroom - you are a small group, you cannot easily hide, it is obvious when you ...
5	But here, one ... a lot more time - pressure
T	Time-pressure?
5	And we could never check email, we had to do our task.
7	And everything we have done is saved with this Camtasia! And if we do something else, I guess that you can see it.
T	Yes.
6	Like Big Brother!
?	Yesyesyes. (laughter)
?	Yes, well

T	That's right.
6	It is a little like, what do you call it?
T	Invasion of privacy! (laughter) – That's why I asked you earlier if you sign.
6	Yes.
2	Ahhh, too late.
T	OK, discuss it with [name of student 5], together you can ...
2	..... (laughter)
T	What do I know, start legal proceedings, against wicked teachers. Ehm, [name of student 9], you said, it is much slower in the classroom. Why?
9	No, I said, often in the classromm it is a little boring.
T	boring?
9	And here it is more interesting.
5	Yes
?	If one ....
ma ny	[Incomprehensible]
9	Can I – here, ehm, suggest something?
T	Yes.
9	I thought, the communication via email was difficult – often – and the point for communication got lost, or ... there were misunderstandings. Also, I suggest, the next time, ehm, in each session we talk for 10 minutes with one another.
2	I agree.
9	I think, at the start there should be 10 minutes, but then ... a company, that does not work.
5	Perhaps improve German
?	German
5	And perhaps write clearer
T	clearer
ma ny	clearer
10	I believe that is the learning process here. We have to write a clear email. If it is unclear, it is our fault, and the following few emails are a little confused.
9	The second week, when you were absent, I had perhaps 10 emails, I could not
ma ny	(Incomprehensible)
?	Why could you not?
9	10 Emails
	Yes. (laughter)
6	I read 20, or what. .... (laughter)
ma ny	(Incomprehensible)

7	I also believe that we need a meeting, either at the end or the start, that we – summarize – what we thought.
T	At the start, the problem, I think, at the start, one can say OK, product – because one does not know, how the project will develop, it is difficult to imagine it. It will become clearer as soon as one starts! To clarify theoretically in advance, without knowing how the project will pan out, is very, very difficult.
8	Yes.
T	But perhaps it is appropriate to say, OK, eh, which project, which product would we like to take and then start.
7	Yes, but, if we had met at the end of the first session for instance, we could have said OK, to briefly summarise, that is a pub chain, like this and this and remembered the following week how that and that of each group, and – that we, because email, if, of course, that is helpful, but sometimes all are mixed up and are not sent to all groups and one says so and that, and then there are different opinions
10	That is normal business.
7	Yesyes. Of course, that is normal, but normal business, in businesses, ehh, they meet each other too.
T	Right, in that case other communicative strategies have to be employed.
7	because – when I – then I have to, for instance when I receive something different from[name of student 2] and [name of student 4],then I have to write to all and show all, that they did something different and that I have to correct it, even though that isn't my job,
T	mmh
7	Because, e.g., they have, well, their task – I do not know
6	I think the task was unclear, we have our own task.
5	I think, we do not have a - Manager
7	Yes.
5	We
ma ny	Yes, Yes
5	and – we didn't have – task – what do you call allocation?
T	Task allocation
5	allocation and ehm
7	Over the course of the, the group
5	Yes, a, a Manager, who can coordinate everything. Therefore, the people have - a - misunderstanding
T	OK. That's about the content, eh, content of the task, and you are right, one can work on the content much faster, if the manager, or leader or the teacher pushes in one direction. But from the perspective of learning the language, the use of the language, it is often the case that we misunderstand something in the foreign language, and also in the first language. It is also important to develop strategies which clarify such misunderstandings. But I agree with you, perhaps the whole thing is too complicated, that it wants to do too many things at once. Ehm,
7	But I really believe that a short meeting can clarify many things.
T	Yes, this was planned during the first, the last session before Easter.

7	But I mean at the end of each session.
T	Each week?
7	Each week.
2	mmh, yes, right, a good suggestion.
6	Yes, a good idea,
ma ny	agree
?	Yesyes, I agree with you.
T	Good that you share the same opinion.
sev eral	(joking and laughter)
T	That is another point which needs to be considered in teamwork and equally in a company, that not everybody works towards the same goal, but rather some work against each other.
	Yes. (laughter)
T	OK, well, it is good that 2 different groups come to the same conclusion. OK – good – well– thank you very much, ehm, if you want to tell me more, please do so by email. That’s it for today.
2	Yes
T	OK, next week in the normal classroom.

## 8.11 Appendix 11 Qualitative research paradigm

**Table 18 Validity**

qualitative paradigm as applied to this case study	Principles of naturalistic research
uses qualitative methods.	-Data are analysed inductively rather than using a priori categories
Phenomenonology and verstehen: 'concerned with <i>understanding</i> human behaviour from the actor's own frame of reference'.	-The researcher is part of the researched world -As we live in an already interpreted world, a doubly hermeneutic exercise (Giddens 1979) is necessary to understand others' understandings of the world; [...]. -Seeing and reporting the situation should be through the eyes of the participants -Catching meaning and intention are essential
Naturalistic and uncontrolled observation	-The natural setting is the principal source of data -The researcher – rather than a research tool – is the key instrument of research
Subjective (RQs 2+3) and attempted to be more objective (RQ1).	-The researcher is part of the researched world -The researcher – rather than a research tool – is the key instrument of research.
Close to the data; the 'insider' perspective.	-Data are presented in terms of the respondents rather than researchers -Catching meaning and intention are essential -The researcher is part of the researched world
Grounded, discovery-oriented, exploratory and descriptive.	-Context-boundedness and 'thick description' are important.
Process-oriented (RQs 1, 2+3) and outcome-oriented (RQ 1)	There is concern for process rather than simply the outcomes
Valid; 'real', 'rich', and 'deep' data.	-Context-boundedness and 'thick description' are important. -The data are descriptive
Single case study	Context-boundedness; -Data are socially situated
Holistic.	There should be holism in the research
Assumes a dynamic reality.	
	Respondent validation is important

According to Cohen, Manion and Morrison (2008:134) the question of validity has to be located within the research paradigm within which the research is situated, without being "paradigm-bound". Above, the left hand column shows the research paradigm which was used for this case study. The qualitative paradigm was adapted from Reichardt and Cook 1979:10 as quoted in Larsen-Freeman and Long 1991:12 (discussed in chap. 3). The right hand column shows the principles of naturalistic research following Manion, Cohen and Morrison (2008). Entries in the right-hand column may appear more than once.